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Existing school library problems are explored to aid in planning for the kinds of library facilities that comprise current and future needs. Basic to all problems are the attitudes of the school administrator and librarian. These two must learn to understand the role of the library mutually. One area of necessary agreement is library content. The authors recommend that a library should contain all kinds of carriers of knowledge (books, audiovisual media, films, tapes, recorders, teaching machines), and thus become a kind of teaching laboratory amplifying and extending other methods of education. A library can function best in a system using a form of team teaching which enables students and teachers to have time to use the library. The concept of a school library begins with definitions of the kinds of student and teacher activities it is expected to house; then the library is organized according to materials, staff, and physical setting.

The physical contents and layout, including a variety of arrangements, environmental elements in planning, and a gallery of prototype architectural designs, offer sources and ideas for the physical plant. Photographic illustrations and architectural sketches supplement the text.

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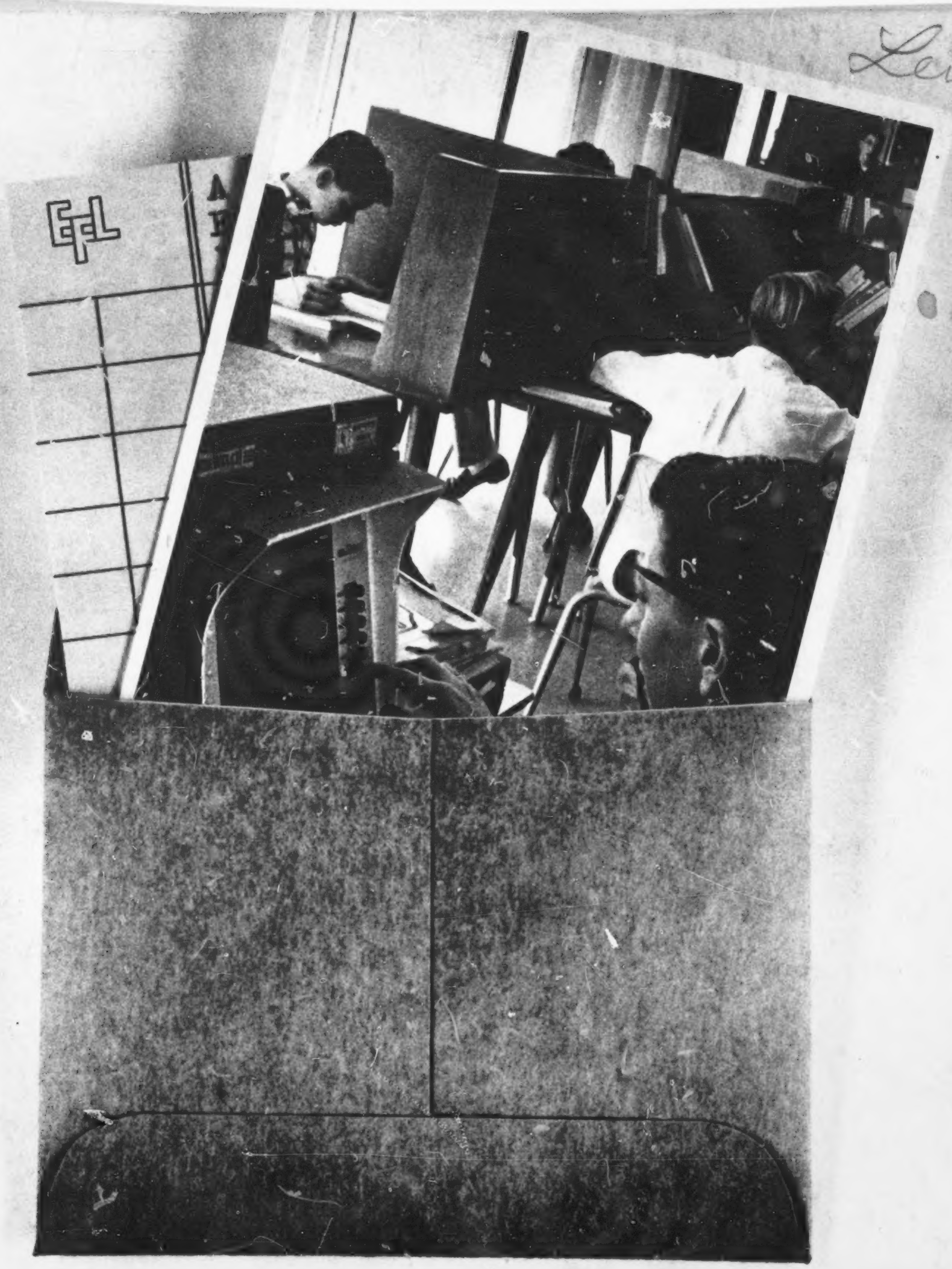

The School Library

FACILITIES FOR INDEPENDENT STUDY IN THE SECONDARY SCHOOL

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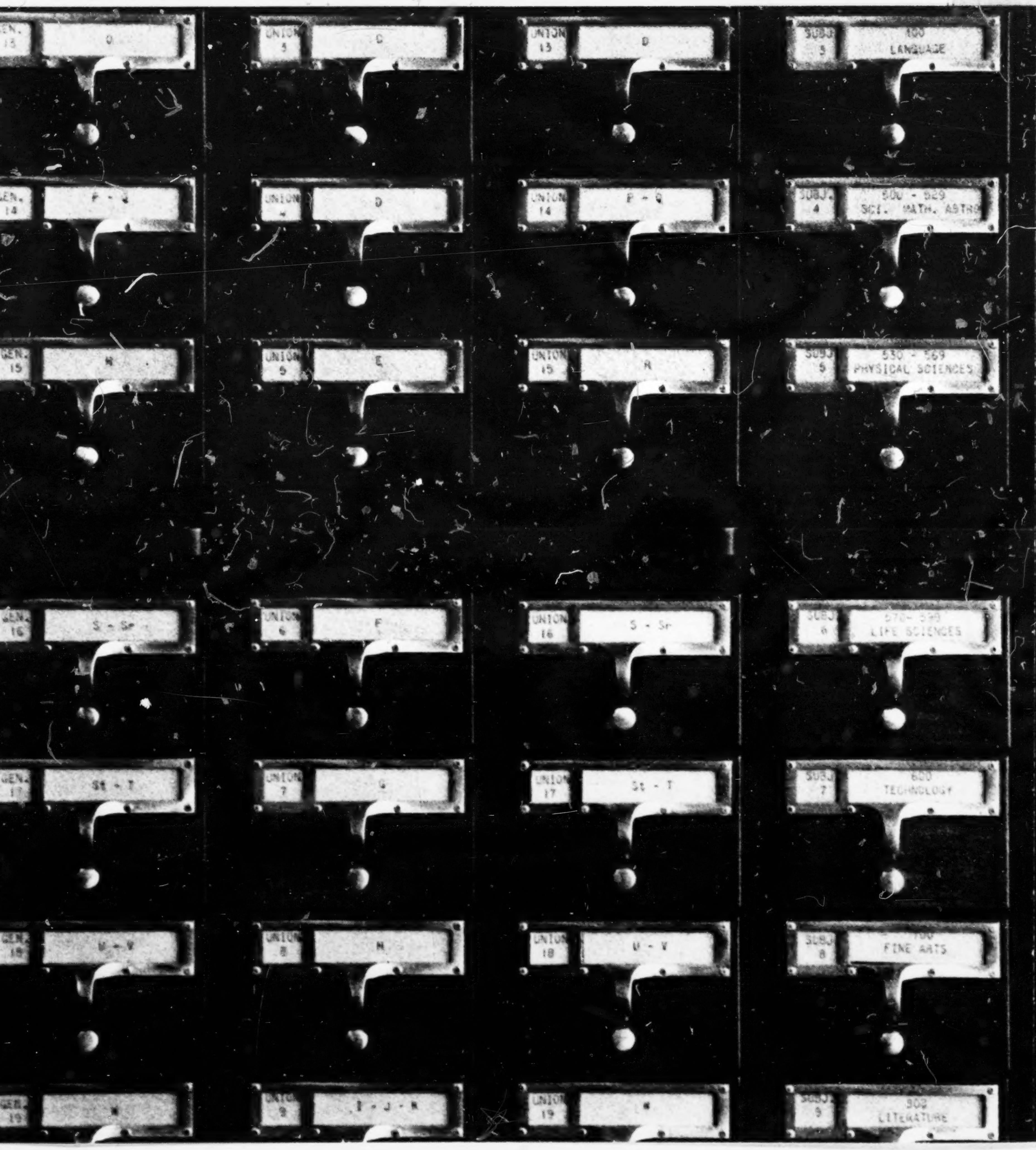
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LITERATURE

A REPORT FROM
EDUCATIONAL FACILITIES
LABORATORIES

The School Library

FACILITIES FOR INDEPENDENT STUDY IN THE SECONDARY SCHOOL

By RALPH E. ELLSWORTH, Ph.D
Director of Libraries, Professor of Bibliography; University of Colorado

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Boulder, Colorado

Edited by Ruth Weinstock

A REPORT FROM EDUCATIONAL FACILITIES LABORATORIES

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An Acknowledgement. Jack Tanzman, Director of Audio-Visual Communications for the schools of Plainview, Long Island, was technical advisor on developments in the field of electronic teaching aids. His contributions to this study were many and Educational Facilities Laboratories extends its thanks.

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FOREWORD

Libraries are repositories of knowledge. The primary function of schools is to transmit knowledge. But over 10 million American students go to schools that are bare of any libraries at all. Where libraries do exist in our schools, the majority are appallingly inadequate. This contradiction, by itself, is a matter for concern. But at a time when educators are stressing the value of independent study, the poverty of library facilities assumes a new urgency. For where, if not within the realm of the school library—by its nature the appropriate academic area for individual inquiry—shall the student engage in independent learning? Clearly, unless the physical means are provided by which students can pursue knowledge independently, the expectation that they will do so in any great numbers is illusory.

That is the frame of reference for this report. Of immediate concern here is the design of secondary school libraries meant for *individual use*: libraries in which the new educational concepts, technological media, and learning materials can be integrated with older carriers of knowledge; in which the environment will encourage learning rather than resistance to it, proffer information rather than ration it, appeal to the reluctant learner as well as the avid one.

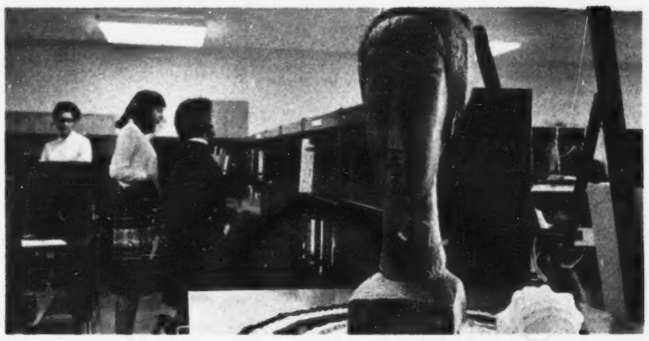
Some schools will be ready to adopt all the recommendations made here. Others may not at this time be in such a position, but may be able to adopt them partially. The setting of goals, however, is a first step in the direction of their realization.

It is the expectation of Educational Facilities Laboratories that educators, architects, and library personnel will find this report helpful in the creation of school libraries that will give vigorous support to teaching and learning, and provide maximum access to scholarship.

Educational Facilities Laboratories

They (the Americans) have all a lively faith in the perfectibility of man, they judge that the diffusion of knowledge must necessarily be advantageous and the consequences of ignorance fatal; they all consider society as a body in a state of improvement, humanity as a changing scene, in which nothing is, or ought to be permanent; and they admit that what appears to them today to be good, may be superseded by something better tomorrow.
—Alexis De Tocqueville, Democracy in America, *1835*

SWISS FAMILY ROBINSON



he added,
'If we can't do it, you won't have to pay.'
Henry B. Swap thought that this would be
an easy way to get part of the cellar dug for nothing.
so he smiled in rather a mean way
and gave the job of digging the cellar of the new town
to Mike Mulligan and Mary Anne.
never been quite sure that this was true.
Anne can dig as much in a
can dig in a week.'

INTRODUCTION

Change—rapid, radical, and often beyond our comprehension—is the keynote of our time.

Consider this. A commercial airline finds it no longer profitable to fly from New York to Paris. The trip by jet is too short, just 6½ hours. To make business sense, it has had to extend the same flight to Rome, some 700 miles and 1½ hours farther. According to one pilot, "In a way the speed creates a problem. You get where you're going so fast that you have to make more trips to get in the required flying time."[1] Fifteen years ago, it took 16⅓ hours to cover the same distance by piston plane.

It is said that in the recent 1960 census 50 statisticians did the job that required over 4,000 statisticians just 10 years earlier.

Even death has yielded to change. A decade or two ago, it was considered a state in which the heart stopped beating and respiration no longer took place. Today that is regarded as "clinical" death and not necessarily final. As the result of new knowledge, the resuscitation of certain cases of sudden death has become a practical matter in many hospitals.

That education is changing—that its goals, methods, and even its schoolhouses are in transformation—is consistent with our times and a reflection of them.

Changing Pressures in the Schools: During the nineteenth century education was largely a matter of firm subjects taught with firm discipline. The rigors of Latin declensions not only trained the mind; they trained the man as well. Strength of character was held to be the natural by-product of arduous mental labor. But the twentieth century differed. Its educators hailed the psychic security of the child as the key to development of the man. Teaching methods, along with the school curriculum, became involved with the "whole child"; that is, with his personality growth and social adjustment. And like plants forced to early flower in the benign environment of a greenhouse, learning ability, it was thought, would blossom in a classroom climate of psychological and social warmth.

But once again, since World War II and more particularly since Sputnik, the American public has shifted its view. It is asking the schools to restore the mastery of subject matter as their primary concern, and encouraging the assignment of specially trained workers to the personal and social problems of children. This, briefly, is the motive force behind the shifting emphasis in education today.

Along with the demand that education focus on intellectual achievement, there has been a parallel demand for change in the training of the personnel who manage our schools. For over 30 years society placed more and more responsibility on the schools for teaching an increasing range of subjects that arise out of the problems faced by parents and children in our modern culture—driver education, sex education, social adjustment, citizenship, etc. As a result, the role of the school administrator shifted. He was forced more and more to assume the role of an arbitrator between the school and community. By the same token he became less and less the educational leader of an academic institution of learning. To qualify for the job, therefore, his professional training consisted, largely, of direct analyses of the problems of the schools and courses in educational administration, philosophy, and methods, rather than in the content of learning itself. But that too has been challenged.

With the renewed demand for the primacy of subject matter, the idea of studying the form rather than the content as a basis for teacher preparation and school administration, is quickly diminishing. Schoolmen themselves these days acknowledge that they must cope with problems that require deep insight into the nature of knowledge in the traditional subject fields. As N. B. Burbank, president of the American Association of School Administrators, puts it:

> "No longer is it enough to have had some courses in education and administration, and a subject major and minor. He (the school administrator) finds himself frequently in deep water if he doesn't have a fair degree of familiarity with such cognate fields as economics, sociology, anthropology, philosophy, and political science. In other words he needs a broad cultural preparation in liberal arts as well as thorough training in the field of educational administration."
>
> —Challenge to School Administration, *Boulder Camera* May 14, 1962

Even in the elementary schools the demand for teachers who know more about the subjects they are to teach (and students are no longer thought of as "subjects") is becoming the rule.

Another area of education placed under sharp scrutiny in the new pursuit of "academic excellence" is the traditional approach to methods of instruction. The prevailing view holds that these emphasize teaching too much at the expense of learning, that they encourage an attitude of passive receptivity on the part of the student. At all levels of education there is currently a great interest in developing curricular patterns and teaching methods that help students learn how to formulate attacks on problems, as well as to acquire information for its own sake. Advances in technology—the widespread use of instructional television, the design of automatic systems for the retrieval of information, and the development of individualized audio-visual equipment which can be carried from place to place throughout the school—all place at the disposal of teachers and students new ways to learn and new places in which to do so.

The old idea of handling students as groups, as though each member of the group were like all the rest, now seems wasteful of the time and talent of the best teachers and students. Attempts are being made to break up the lockstep aspects of secondary education and to place more responsibility on the student for the manner in which he studies and for the rate of progress he maintains.

The patterns of individual study and varied group sizes and time schedules set forth in J. Lloyd Trump's *Images of the Future*[2] have already had considerable impact on the educational scene, to the point of changing the very nature of the schoolhouse itself.[3] Some planners are even thinking of schoolhouse designs based on the concept that all formal instruction will be given solely by television reception to students based in their own study carrels. In this system, the classroom as it is traditionally known is virtually eliminated.

Whatever the variations on the theme, the motif of self-instruction and individual inquiry rings loud and clear.

But if students are to pursue knowledge on their own, if they are to study independently, then they must be provided with the facilities to do so. A logical starting point is the school library, the only academic area ordinarily planned for individuals rather than groups. And that—the creation of good working libraries—is the subject of this report.

An accurate barometer of the intensity of interest in knowledge *qua* knowledge is the kind of library service provided by a school. In most of today's secondary schools the library will be found in a small room with a few hundred books around the walls. Seats for a few readers are presided over by a librarian whose main task is to keep order over a reluctant group of students who are there, not because they want to be, but because they have been sent there to study their textbooks. The students are likely to be more interested in attracting attention than in pursuing the study of a problem. They are there not as individuals, but as captive groups.

This thumbnail sketch is unfortunately true of all but a small percentage of school libraries today. The most enlightened school librarians, teachers, and administrators have not been happy with this situation. Many of the standard texts which molded the attitudes of today's administrators, however, either sanctioned or were content to tolerate this kind of school library. Though most of the more recent books on school administration advocate an enlightened concept of school libraries, due to inertia, or unwillingness to make the necessary expenditures, or special local factors, few school districts have an enlightened library policy.

Barriers to Progress: Since the purpose of this study is to help schools plan the kinds of library facilities that are currently needed and will be needed in the future, it is important to explore some of the existing problems. By isolating the deficiencies which make today's school libraries ineffective, indeed, cause them to operate as barriers to learning, progress can begin.

What are some of these barriers?

Here are two important ones, both part of a complex of longstanding antagonisms and misunderstandings that must be eliminated or minimized:

School Administrator-Librarian Attitudes. School librarians tend to think of school administrators as men who have been trained in methods rather than educated in the liberal arts. Librarians consider that administrators are not bookmen and therefore are not interested in school libraries. The administrators, so librarians claim, impose limiting conditions on the library that prevent the librarians from making the contribution to the instructional program they know they should be making. The resulting frustrations, well known in the profession, represent a barrier that interferes with the recruiting of enough good school librarians.

School administrators, on the other hand, tend to think of the librarian as a Victorian maiden lady whose major interest is to see that all the library books are safely on the shelves all the time and who likes to preside in the middle of a reading room with a sharp-edged ruler poised for use on any student who makes noise or disturbs the tidiness of the school library.

We have found all kinds of school administrators and librarians, and, as is undoubtedly true of many professional groups, the unworthy practitioners often overshadow the worthy ones. School librarians are most often blamed for the unsatisfactory library service in schools. They in turn blame administrators. What are the dynamics that operate behind the scene?

In the case of administrators, one has only to follow in the footsteps of a school superintendent and watch him wrestle with the problems and pressures that make up his day's work. It becomes clear at once that only a superman can have enough energy left at the end of a day to spend his free (if any) evenings reading the kinds of books school librarians think he should read. To quote N. B. Burbank again, from the afore-mentioned piece addressed to school superintendents:

> "An overriding problem, one which may well outstrip all others in urgency, is found in the tensions which have come in recent years to be an integral part of your daily life and mine. The larger our districts become, the more our enrollment grows, the more we find ourselves embroiled in tension-producing activities. More and more prized is the ability to go home and relax in the evening, and get a good night's sleep. Too few of us can still do this—most of us are lucky if we get away for two or three weeks in the summer. The complexities of our responsibilities today are indeed far reaching."

Juxtaposed against this are the young school librarians with stars in their novice eyes who find they are licked before they begin. They quickly learn that they are unable to change the conditions which created the situation in the first place. What are these conditions?

—A philosophy of education that provides little motivation or time for student use of the library.

—A study hall concept of the library which discourages affection for reading, and turns the library into a forbidding place rather than a living room. Most often the library is too formal, too institutionalized, devoid of pleasant furniture, and lacking in imaginative displays and service.

—A physical setting that is not only isolated from the main stream of student traffic, but is also inadequate in size.

—A collection of books, periodicals, newspapers, and audio-visual materials so small that it stifles potential interests and meets only the needs of the poorest and most limited students in the school.

—A separation of book and audio-visual services.

—A library that fails to take into account the fact that the technology of communication is changing rapidly.

—A lack of understanding by the administration that competent librarians should be delegated the responsibility and authority to administer the library and work with the teaching staff as

Set up for surveillance of students and the orderly arrangement of unvaried materials, the typical school library is uninspired in form, content, and spirit.

materials consultants.

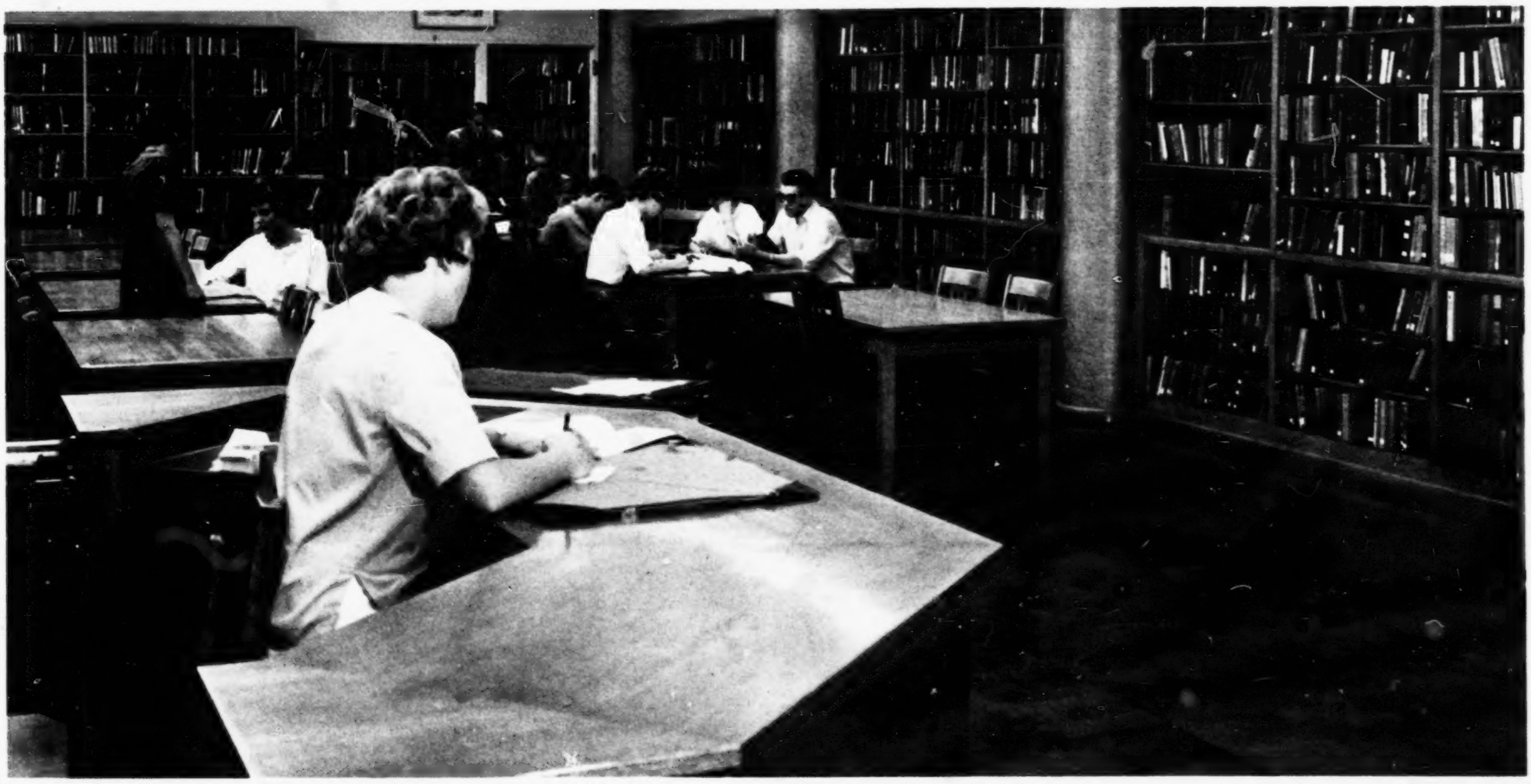
— A concept of staff size that limits the librarians' energies and time to the routine tasks, giving them no opportunity to play an intimate role in the instructional program.

Given these conditions, it becomes apparent that the situation wouldn't be much better if all librarians were perfect. Clearly the underlying causes are to be found in the philosophy that shapes our schools, in teaching methods that don't require better libraries, in inadequate learning resources, in poor physical settings, in the low expectations of student effort, and a host of other factors that have nothing to do with the capabilities of school librarians. The librarians are a product of the conditions that have made school libraries what they are, not the cause. An appropriate school library operating in the right kind of instructional relationships would encourage good school librarians to do the kind of work they know they should be doing, and that others expect them to do.

To be sure, this report is not concerned with passing judgment on the points of view characterized here, but it is concerned with their relationship to the presence or absence of good school libraries. We pay our respects to the many thoroughly enlightened school administrators we have worked with. But they are in the minority. We also pay our respects to the enlightened school librarians we have worked with. But they too are in the minority. We trust this report will make clear to both groups that their own attitudes, beliefs, and points of view may be the reason for the level of library service that exists in their schools.

Confusion Between the Content and Carriers of Knowledge. A second major area beclouded by misunderstanding is the relationship of the content to the carriers of knowledge. There is a frequent assumption that content must be associated with just one type of carrier. The confusion that grows from this is expressed in the often-heard question: "Should the library contain audio-visual materials and services, or should these be contained in a separate 'instructional services center' with the library limited to books?"

The answer to this turns on whether one takes a static or dynamic view of what a library is.



Ever since man learned how to communicate above the level reached by animals, he has developed language symbols and has tried to record them so he would not forget them, and so that he could share his knowledge with his fellow men. At various times he has kept the record in the form of clay tablets, pieces of wood, papyrus, scrolls, handwritten books, machine-printed books, phonograph records, transparent films (moving or static), tapes, wires, electronic impulses, and so on. Today, knowledge can be recorded and shared in many ways.

There has been a tendency for man to get excited each time a new carrier for knowledge is invented. Opinions range from thinking the old better than the new to thinking the new better than the old.

For example, one can imagine that when words on parchment began to replace clay tablets, scholars must have thought the scrolls to be less permanent, and librarians probably found them difficult to shelve and keep clean.

Soon after Gutenberg developed a mechanical method of producing identical copies, we know that there were people who thought the printed books less dignified or beautiful than handwritten manuscripts.

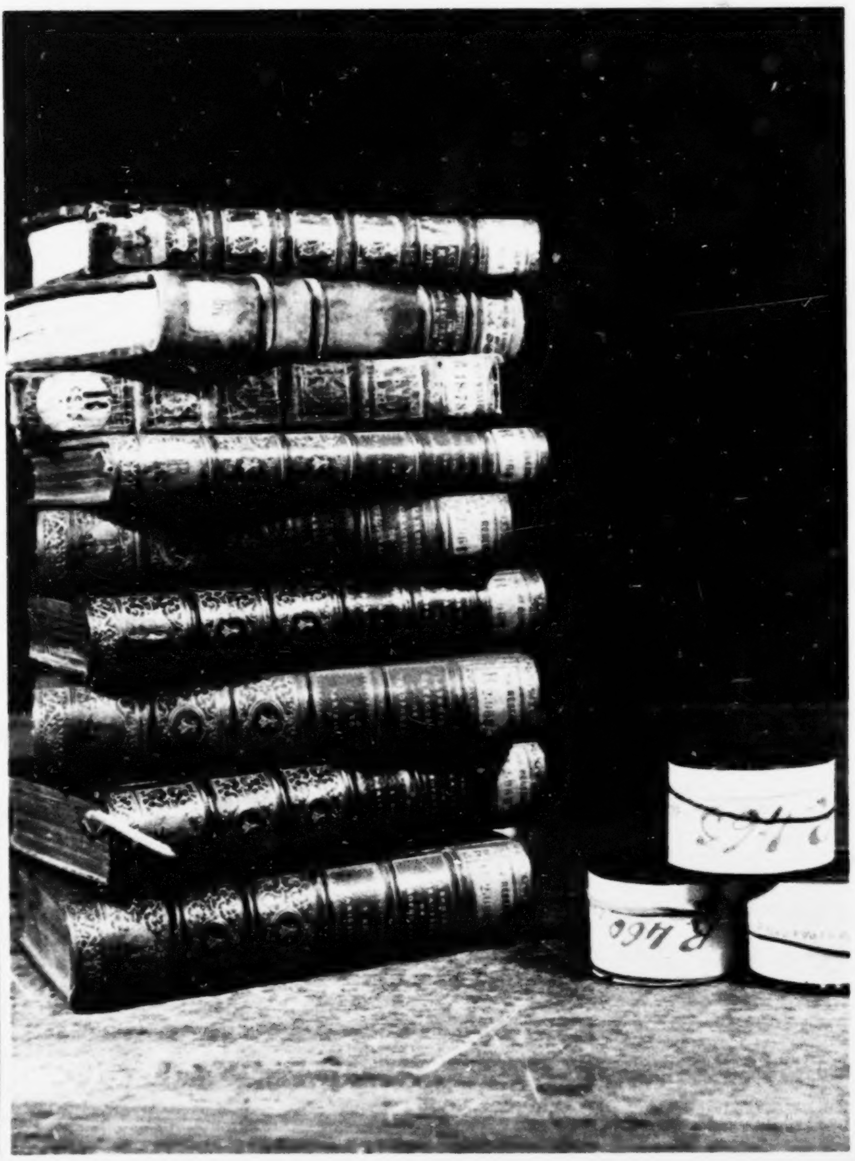
We know, for instance, that the Dukes of Urbino would not allow a printed book in their library until a century after the invention of printing. They considered printed books ugly. On July 7, 1553, the Sorbonne recommended to Francis I that "to save religion it is necessary to abolish for all time in France, by a severe edict, the art of printing."[4] Renaissance scholars like Erasmus welcomed printed books. Opposition tended to come from scribes facing possible technological unemployment, and book collectors, like the Dukes of Urbino.

This age-old confusion in the relationship between the carrier and content plagues us today over the issues of the so-called audio-visual aids and the use of teaching machines. Today one hears absurd claims that the motion picture is better than, or poorer than, the book; that "one picture is worth a thousand words"; that books are old-fashioned and films are not; that a book can't teach because it isn't "programed."

Librarians are reputed to be against audio-visual aids and audio-visual experts are reputed to be against books. School administrators are said to be willing to spend thousands of dollars for audio-visual materials and unwilling to spend tens of dollars for literary material.

It is undoubtedly true that certain carriers may prove to have specialized usefulness not shared by other carriers, but there is enough evidence to suggest that, since all carriers can serve individual as well as group use, it would be wise for schools to consider them all as legitimate library materials. Similarly, as the already formidable list of available carriers grows, the library staff may have to be a balanced team of specialists trained to make optimum use of all the school's informational resources.

Largely because of the hardware needed to recover information from them, tapes, motion pictures, filmstrips, and recordings, present problems of technology and selection, and often of program development, that are not posed by the printed word. During the early stages of accumulation of audio-visual media and materials, the librarian is competent to manage them and to guide students and teachers in their proper use. But as the program and collection grow, the librarian is not likely to have the time or training to handle the specialized chores that accompany extensive use, nor should she be expected to. An audio-visual expert or "media specialist," as they are called, will be needed to fill the vacuum. If, for example, the library should have a system for the electronic transmission of information from a central source, it could not manage without the services of the media specialist whose job it would be to design the components of the system and supervise the production of materials to be used in it.



The point is that schools need to adopt a dynamic concept of the library as a place which includes all kinds of carriers of knowledge so that the critical question will not be "Is television or film better than the book?" but rather, "Which carrier of knowledge is best to accomplish the task at hand?"

The air of mystery and novelty that surrounds the idea of knowledge appearing in the form of a little black box or a metal can containing a tape, will do no harm unless it prevents educators from making a realistic evaluation of the specific value each carrier is capable of contributing to the learning process in comparison with other carriers.

On the other hand, those whose natural enthusiasm for the new tempts them to overlook the values of the old might recall that the printed book is both "visual and audible"; that it is relatively inexpensive and highly mobile; that its use does not depend on an electric power source; and, further, that it is capable, as a thing in itself, of winning man's affections. At the same time, the new cannot be neglected out of loyalty to the old. If the school library is to realize its potential function as a learning center, old prejudices and complacent rigidities had better yield to a spirit of academic enterprise.

It is the intent of this report to develop a concept of the school library and a method of planning that will, hopefully, eliminate the base of the confusions and poor practices that now exist throughout the country. We hope administrators, library personnel, and architects will use it to help them design libraries that will be free to act as a vigorous force in the educational program of their schools.

As the body of knowledge increases, so does the means for storing and conveying it. Small cartons with microfilm tape contain entire contents of the nine volumes beside them. Book, tape, or any other carrier—all are proper library materials.

COLLEGE LIBRARIANSHIP OLD AND NEW

ITS RELEVANCE FOR THE SCHOOLS

Many of the innovations in our secondary schools are of a collegiate nature. Independent study, honors programs, the progression of the student through school as an individual rather than part of a fixed group, seminars, the adjustment of teaching procedures and class scheduling so as to give the student free time, are all characteristic of higher education. Colleges and universities have been wrestling with these problems for nearly half a century and have accumulated a great deal of experience that is helpful for the lower schools. Although schoolmen have traditionally thought of the college professor as being uninterested in teaching methods, they are finding, much to their delight, that the opposite is true. In such institutions as Chicago, Wisconsin, Harvard, Bennington, Antioch, and Reed, for example, there has been a lively interest in experimenting with teaching methods. At a time when the schools are moving in a collegiate direction, therefore, the experience and judgment accumulated by the colleges commands attention. Fortunately, the schools and colleges today are more willing than ever before in the history of American education to work together with sympathetic realization of the compatibility of their efforts and problems.

Of particular relevance is that since World War II, college and university librarians in the United States have given much thought to the role of the library as a teaching instrument. As a result they have developed buildings, concepts of service, and instructional relationships that have opened the way for many new ideas in teaching. They provide a wealth of proven experience upon which the schools can draw for help in solving their library problems. Hence their story here.

A century ago, when the accumulated body of knowledge was still relatively small and modern scientific methods had not yet become widely accepted, it was possible to contain enough information in a textbook to use as the basis for a course of study. As modern scholarship began to unfold its influence, however, the quantity of knowledge that had to be transmitted began to outgrow the single textbook, and the problems of selecting relevant information became acute.

College and university libraries began to grow rapidly around the time of World War I, and the major concern of the librarian was to acquire and preserve the carriers of knowledge. Not much attention had to be paid to the *use* of libraries by students.

But as the college teacher found that the amount of knowledge he wished to teach spilled over the textbook, and as the problem of selection and evaluation of information came to the fore, he began to demand that the college library concern itself with *use* as well as with acquisition and preservation.

Finally, in the thirties the publication of two books — Branscomb's *Teaching With Books* and Munthe's *American Libraries from a European Angle* — started a new trend in college librarianship. Since that time much attention has been concentrated on the use of libraries. Today the theme of *the library as a teaching instrument* is the slogan around which college library service is organized. The university library carries the added responsibility of fulfilling the needs of research, in addition to its teaching role.

Here, briefly, is a summary of what the library as a teaching instrument has meant on the college level.

A. Students have direct access to many carriers of knowledge so that they can develop judgment in selecting the most relevant, and so that they can learn to distinguish between the good and the bad. This implies the presence of a large number of carriers. Also implicit, of course, is the assumption that the teacher is concerned not only with transmitting knowledge but, in addition, with teaching students how to develop criteria for evaluating new information and for solving problems.

B. Students are individuals. As such they have individual needs in working with the carriers. The library arranges its facilities, both human and physical, to give each student an opportunity to work alone. To do this, the library materials are arranged so that the individual can find the one he needs. The library keys are accessible. The library staff assumes that its business is to be helpful. There is a wide variety of different types of work spaces to meet the varied needs of the student, and library users are no longer herded into large study hall reading rooms. Rather, the entire library is an interfusion of materials and work space.

Moreover, in contrast to the conditions that prevail in most American schools, the library is located so that it can be kept open late afternoons and evenings, as well as weekends. Today, few school libraries are open after 4:00 PM and almost never on weekends. This is reminiscent of the practices of the colleges in the late nineteenth century. High school students these days are not universally expected to go home after school to help with the chores, or to spend their Saturdays on jobs and their Sundays exclusively on religious activities. Times have changed, and the schools should adapt themselves accordingly.

C. Because the physical environment has much to do with the behavior of the student, the library strives to be comfortable, friendly, and inviting. Problems of conduct and misbehavior are minimized or tend to disappear if the physical setting is right. The atmosphere of a home living room is achieved through the use of good light, interesting color, good furniture properly designed and arranged. All the arts of architecture are used.

D. Every means is tried for motivating students to read. The strongest motive has been found to come from the interaction of teacher and student in the classroom. Honors programs and the like, which place responsibility on the student, are important. Allowing students free time for self-study is prerequisite. And, of course, having teachers who have the magical ability to teach is essential. Emphasis on report writing and other forms of individual learning that force the student to go to the sources of knowledge appeals to the better students. A minimizing of extra-curricular activities

High utility and a pleasing surround may not motivate students to use the library—but the lack of them may motivate students out of the library. Photo shows a persuasive blend of both elements in Colorado College's Tutt Library. Skidmore, Owings, Merrill, architects.

(above) *Chained books at Oxford, relics of a day when libraries were primarily repositories of knowledge. Access to information reached as far as the chain would go.*

(right) *Reverential gothic, a tradition in college library design, has given way to a straightforward, functional style. Here, the open and direct exterior of Washington University's Olin Library reflects its concept of service. Murphy and Mackey, architects.*

that distract student attention, with a simultaneous respect for the importance of learning, helps. (Strangely, those colleges that are most effective in creating "love for alma mater," pride in the personality of the college and a sense of loyalty—such institutions as Oberlin or Reed—seem to be most successful in creating a thirst for learning.)

At Reed College, for example, one finds many explanations offered for the great amount of individual study by the students, but both faculty and students agree that among the most significant factors are the lack of intercollegiate athletics and a fraternity system. Students don't go to Reed unless they are willing to devote themselves to studying. They don't remain on campus unless they do. It is hard to explain the importance of these motivations to outsiders but they are very real to alumni of these institutions.

Without primary sources of motivation, colleges have found that reading and library study are not as extensive as they might be. It would be foolish not to recognize that even among the good colleges, students in the past have not always been expected to do a great deal of library work beyond the requirements of the textbook or the term paper. The observation of Mrs. Patricia Knapp, Director of the new Monteith College Library Project, is significant in this regard:

> "Most will agree that the gifted student has both the motivation and the talent to acquire through his own efforts a reasonable competence in the use of the library. The average, or below average student, on the other hand, is likely to avoid the library, hav-

ing found it a useless if not actually a terrifying place. It is not enough that he be stimulated to use the library, he must be provided with experiences which convince him that using the library is a necessary and meaningful part of education."[5]

There are secondary sources of motivation that are important too. The right kind of building, properly arranged and equipped with the right kinds of facilities, interesting displays and exhibits, and many other merchandising techniques, does persuade students to read. The testimony of librarians in colleges that have provided enlightened new library buildings such as can be found at the University of Michigan, Wayne State University, Grinnell College, or Colgate, is unanimous in claiming a corresponding increase in the quantity and quality of library use.

Good examples of other enlightened college libraries can be found all over the country. Typical examples are at Harvard, Georgia Tech., Colorado College, Cornell, University of Wyoming, Knox, Baldwin-Wallace, North Dakota State, and Bennington, to mention a few.

The parallel to be drawn between the development of college librarianship and school librarianship is this: school librarianship is in somewhat the same position today as that occupied by its college counterpart in the mid-thirties; that is, college presidents, professors, and librarians wanted a different kind of service from that which existed. The new quality of service desired by everyone involved did not materialize for another decade. It was not until the mid-forties that new buildings began to be erected, new methods of teaching that emphasized independent study became common, book funds and librarians' salaries were increased, audio-visual programs were evolved, and librarians, finally accepted as part of the teaching staff, came forward with programs indicating they understood the meaning of the library as a teaching instrument.

Evidence indicates that the same evolutionary pattern has begun to take place in our school libraries.

A NEW CONCEPT FOR A SCHOOL LIBRARY

In this report the school library will be called a library, not an instructional or learning center, an instructional media center, a resource center, or any of the other labels currently popular among schoolmen to convey an expanded concept of the library's function. The reason for this simply is that the word "library" has time-honored meaning, it is untarnished by faddism or the caprice of style, and it is understood by the public as the traditional place where the carriers of knowledge are kept and used.

For similar reasons, and for simplicity as well, the user of the library will be called a reader. Though the purist might insist that he be called a viewer if he is looking at film, or a listener if he is using tape, he has gone to the library for the traditional reason: to pursue information, regardless of how it may be stored. Viewing or listening, he is merely expanding his ordinary activity in the library.

A concept of a school library begins with an analysis of the kinds of activities it is expected to house. Obvious as the question may seem, the first one that must be asked is: What do students do in school libraries?

— Find answers to specific questions that arise either from the teaching process or from ordinary curiosity.
— Go alone or as a member of a committee sent to get information.
— Carry out study hall assignments; that is, spend a specific amount of time studying in the library.
— Find material for projects such as a written report, a book review, a debate brief, or a research paper.
— Learn how to use the keys of a library—card catalogs, bibliographies, reference books, periodical indexes, etc.
— Look at motion-picture films, filmstrips, or other audio-visual materials. Study with a teaching machine, listen to phonograph records or tapes, listen and record voice for language study.
— Locate quotations, excerpts, or data for speeches or projects.
— Read just for the fun of reading—one book or a hundred.
— Browse through current magazines and newspapers or look at the new book shelf.
— Talk with other students.

The second part of the same question is: What do teachers do in school libraries? Activities similar to those mentioned for students, but they also

— Confer with the library staff on relevant materials to use for class work: those appropriate for general presentation in the classroom, those most suitable for students working in small groups, and those appropriate for use on an individualized basis.
— Preview films and filmstrips; confer on the purchase or rental of audio-visual materials, and on local production of same.
— Consult with librarians on book purchases, on the handling of special materials (pamphlets, sample magazines, government documents, etc.), on classification and cataloging problems, and on reader's problems and difficulties that the students may be having.

The Organization: A library usually involves three elements: the materials, the staff, and the physical setting. In all but the very small school, it should be thought of as a system or a network rather than as a single, enclosed room as it is so often regarded. There are different kinds of libraries to match the needs of different situations. In the past the American school has been highly standardized, but if present-day trends continue, individual schools will be developing more individual personalities such as are characteristic of many of the colleges and private preparatory schools in this country and England. It is axiomatic that in writing a program for a college or university library, one never finds two institutions exactly alike. Each library differs in some ways from all others, so may one expect to find many different kinds of school libraries in the future.

The factors that make for individuality are the nature of the building or buildings, the school program and traditions, the availability of other usable libraries, and the point of view of the planners.

Among the various kinds of school library systems, the following are typical:

The single, inclusive central library which serves all grades and all kinds of needs.

A dual system, one for elementary grades and one for the secondary school. Where the junior high school is in a separate building, a separate library is provided, otherwise it is a part of the high school library.

A central library which gives book truck service to all classrooms and laboratories, or from which may emanate closed circuit television or other audio-visual programs received in class or lecture rooms.

A decentralized system based on some form of subject grouping such as sciences, social sciences, and humanities, with one of the three or sometimes a fourth also serving as the headquarters library. Each division is fully staffed with competent librarians.

A fully decentralized system in which, in a sense, the whole building is a library. Here all types of learning or teaching activities are subordinated to teaching centers.

The library concept advocated in this report is intended to support a particular type of school organization, one that grows out of the current dissatisfaction with the "cells and bells" arrangement in which each school day is rigidly broken up into a series of equal time slots, and equal-sized classrooms, with a fixed and constant teacher-student ratio. The dissatisfaction is centered on these elements:

The student develops a passive attitude toward learning. The teacher takes the initiative. The student's day is filled with attending classes. He has little time for independent study, and it is not expected of him. School activities consume any free time he may have. Learning is fragmented into many small, unrelated classroom subjects and much time is wasted in the mechanics of going from place to place, subject to subject, and in the warm-up required by this process. The student has too little time for the "laboratory" part of learning, including the use of books and other resources as a laboratory kind of experience. There is too much "teaching" and too little learning.

Further, in a period of shortage of qualified teachers who are well educated in both the subjects they teach and the skill with which to teach, there is a waste of the teacher's time on activities that could just as well be performed by people with lesser ability and training. The fixed size of classes, always with 25-30 students, further wastes the talents of those able teachers who are available.

To repair these weaknesses, a different system of school organization has been proposed. Called "team teaching," one of its main objectives is to concentrate the time and talent of master teachers exclusively on teaching, leaving other activities to assistants who are not as highly qualified but have other specialized abilities. The particular pattern may vary from school to school, depending upon size, program, and other variables, but in general, master teachers, librarians, instruction assistants, and clerks work together in a team. A lead teacher is responsible for coordination of the team's work. By pooling their individual strengths, each teacher is given the opportunity to concentrate on what he does best. He is relieved of those tasks which a colleague, by virtue of preference or ability, may be better equipped to perform. He is relieved too, of those subprofessional housekeeping and clerical chores which can be carried out by less highly qualified personnel. Thus a master teacher especially gifted at lecturing, for example, may be solely assigned to the formal instructional work of a team, lecturing to as many as 150 students gathered together at one time. Because he has fewer classroom contact hours, perhaps 9 to 12 per week, he is left with adequate time for study and teaching preparation. Other master teachers, adept in other skills, may lead seminars, head creative workshops, or work in laboratories with individual students. The librarians, who are members of the team so their services can be more closely interrelated with the teaching-learning process, meet with teachers to evaluate instructional programs. Assistants, not as highly trained as either teachers or librarians, may supervise places where independent study is scheduled, correct factual details in tests or student papers, or make certain that materials for reading assignments are available in the library. Clerical tasks are performed by clerks and general aides. It is assumed that in every community there will be men and women available to handle the work of the assistants at a lower cost than that commanded by teachers.

The counterpart of this is a revision of the manner in which students spend their time. To permit each youngster to move ahead consistent with his own ability and to provide opportunity for independent study, his schedule might be divided roughly this way: 40 per cent of his time in a large group receiving formal instruction delivered in person by a teacher-lecturer or via centrally produced television; 20 per cent as part of a small seminar group which provides opportunity for discussion and the interchange of ideas; the remaining 40 per cent, in studying on his own, or teaching himself.

Americans may not yet be ready to accept the idea of making full use of either "automated-" or self-teaching, but these ideas are old. They are the basis of the Oxford and Cambridge concept of higher education. The professor gives a series of lectures for any student who wants to attend. The student works with his tutor whenever he needs help. The rest of his time he studies independently. The initiative rests with him. What is new is the nature of the tools that are now available to help the student teach himself.

The Library as a Teaching Laboratory: The technological breakthrough represented by the development of the transistor tube, which permits electronic equipment small enough and light enough to be taken from place to place and used wherever the learner wishes to work, opens the way to new learning techniques and new places in which to learn. No longer is it necessary to plan entirely in terms of fixed-function space and built-in equipment.

Portables for the use of television reception, filmstrips and slides, phonograph records or tapes, and language laboratories have been in existence for some time. But new kinds are constantly being developed. One is a cross-media unit which combines a filmstrip viewer and audio-tape or record player packaged in one container. It is set up so that the tape activates the filmstrip to move on its own. Another new model has a tape in a cartridge, eliminating the threading and handling problem. Still another is a new battery-powered audio device that weighs only seven pounds, but contains as many as 22 separate programs on one tape, including a voice recording and playback mechanism for the study of a foreign language. With the development of 8 mm. cartridge film, the motion picture, traditionally confined to service in the classroom only, can be liberated for use by the individual student in the library.

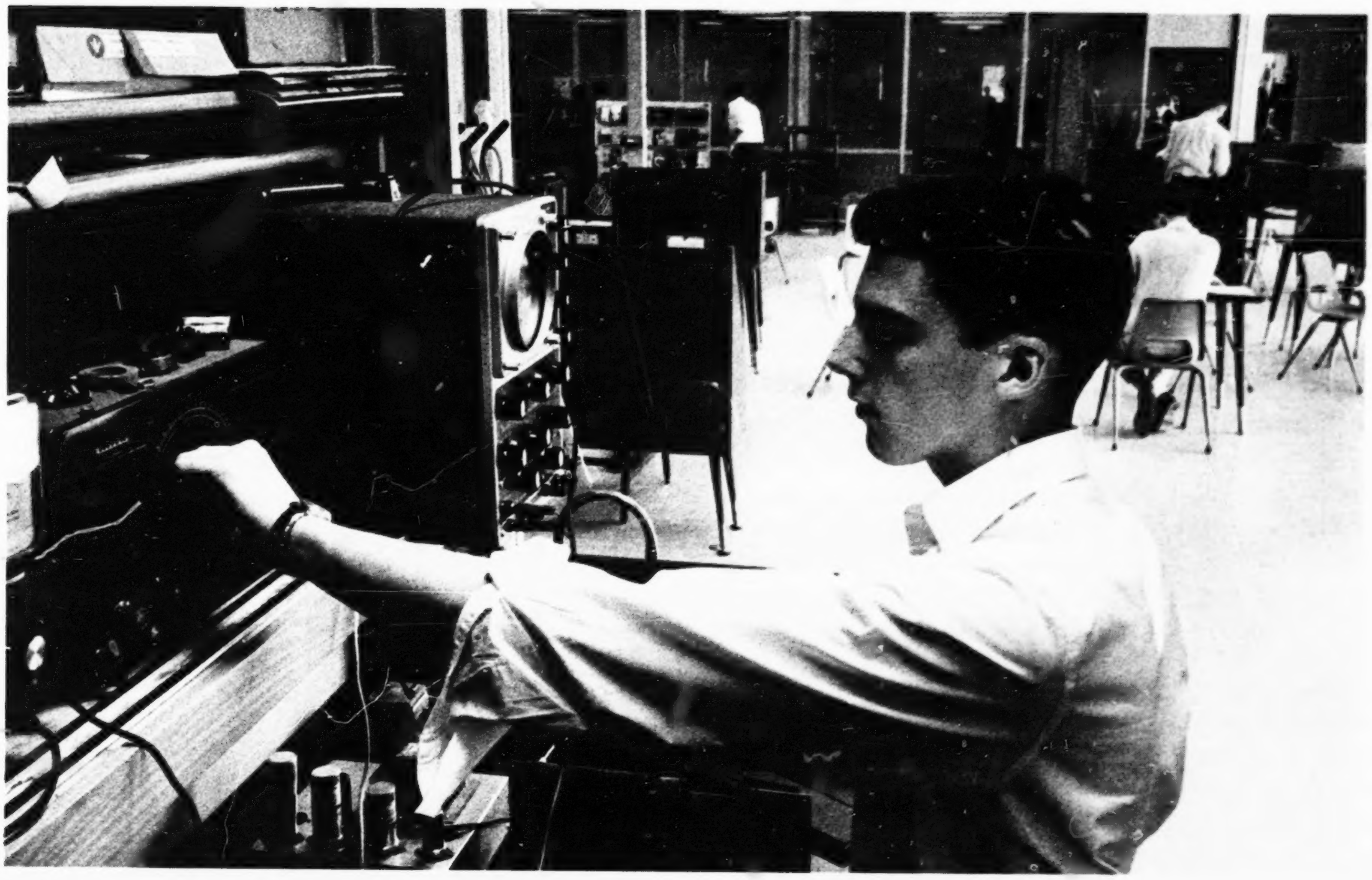
Television kinescopes, video tapes, and "programed exhibits" of different kinds swell the number and variety of carriers and materials. An excellent example of a programed exhibit can be found in the Desert Museum near Tucson, Arizona. Here one walks along a path bordered by a series of displays depicting problems of conservation, erosion, water use, etc. The visitor presses a button which starts a sound track and activates the program which has been designed to teach a specific idea or concept or action. Although the idea is still new, schools are beginning to prepare exhibits of this kind for the teaching of specific projects. (Actually a well-constructed motion picture or book is also a type of programed exhibit.)

Then of course, there is the teaching machine, perhaps the brightest star in today's constellation of teaching aids. A variety of programed teaching tapes have been prepared for the machines, to serve as study guides in a number of disciplines. The biology, mathematics, and physics teachers of the country have been hard at work revising the teaching programs for those sciences, and new books and materials are currently being prepared and tested. (American Institute of Biological Sciences Curricular Study; the Physical Sciences Study Committee.) Similar developments are under way among the chemists and mathematicians. Many of the programs can be used by individual students as a substitute for the lecture the teacher might otherwise deliver to large classes.

We wish to emphasize the fact that educational institutions appear to be at the edge of a revolution in learning techniques. As Harvard's then Dean Bundy describes it:

> "The slogan words are 'self-instruction', or 'programed learning', or 'teaching machines'; the reality is as hard to describe as it is extraordinarily promising. The essence of the matter is not mysterious: information can be so ordered and presented that a learner actually engages in the rapid step-by-step control of the material; this has always happened when a deeply interested

Some of the new tools students are using for self-study: (1) Cold Spring Harbor H. S. uses space as a tool; cubicles in the decentralized science library enable students to conduct individual research projects close to informational sources. (2) A pace reader for improving reading speed, in use at the Ridgewood H. S. (3) Portable unit combines a filmstrip viewer and record player; record narrates the film. Cold Spring Harbor H. S. (4) A teaching machine engages the active participation of a learner at the New Lincoln H. S. (More on following page.)



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> learner met a particularly well-written text. The new technique simply multiplies the effectiveness of the process. It is a technique, not a monster . . . . And the student is not taught by the machine —he learns with it. Indeed, it is precisely the inescapable need for—and reward of—his active participation in the operation that differentiates this kind of study from reading a book."[6]

—and we wish to add, from watching a motion picture, listening to a phonograph record, or using any form of information carrier that has not been devised to take full advantage of the personal, step-by-step, mechanical operation required by the student. Dean Bundy continues:

> "One particular advantage of teaching in this manner is that it becomes no hard thing to create a library of programs which will respond to the complex interdependencies of learning . . . . In college physics today it is not easy to provide instruction that is equally serviceable and relevant for the would-be biologist, chemist, and physicist, all three. In mathematics there is perhaps a still more searching difficulty in teaching analysis as it relates to both advanced mathematics and applied physics. Ordinary courses cannot readily be divided into a large number of subtly differentiated elements—but programs of self-instruction can. There is no reason, except the effort of the programing, why a *self-instruction laboratory* should not have many kinds of sub-courses providing the student with the particular things he needs. Libraries do this already, of course, but programs can do it better, and indeed this instrument is *neither more nor less than a better kind of book, for many purposes.*"[6]

Dr. B. F. Skinner, one of the originators of teaching machines, places emphasis on what may be the heart of the matter with this statement:

> "It is curious that such suggestions (paying high salaries to teachers, trusting students as individuals and grouping them according to ability, bringing textbooks and other materials up to date) rarely deal with the actual processes of teaching or learning. They make no attempt to analyze what is happening when a student listens to a lecture, reads a book, writes a paper, or solves a problem. They do not tell us how to make these activities more productive. In short, *the methods* of education are generally neglected. The use of films and television does not constitute a new method; it is merely a way to amplify and extend old methods, together with their shortcomings."[7]

His point, namely, that the teaching machines permit a kind of teaching and learning activity that books and other audio-visual devices cannot do so well, seems hard to grasp until one has actually worked with the machines.

No one at this time can be certain of when and how these machines will fit into the school program. It is safe to predict though, that the library staff will manage the tapes for teaching machines just as it now does printed books, pamphlets, slides, and motion pic-

(5) Portable, cartridge-loaded, 8 mm. movie projector has headsets so students can watch a filmed lesson without disturbing others at the same table; may be used without darkening the room. A recent development, films for them are still limited. (6) Seven pound, battery-powered tape recorder, used by youngster in the Dundee Elementary School; contains recording and playback mechanism for foreign language study. (7) Listening hardware, permanently installed in tables at the Bennington College Library; students select tape or record from open stacks nearby, thread machines themselves.

tures, as legitimate library material. Then, there will need to be "keys" to the tapes so that students will be able to find out which tape is relevant to their needs. These keys may well, at first, consist of the advice given by the teacher and the librarian or audio-visual expert, but sooner or later they will take the form of bibliographies and catalogs to be found in the library's reference collection. Some tapes will be consumed as the student uses them and will be thrown away when they have served their purpose; others will be returned to the library and re-used.

It would also seem safe to guess that the machines in which the tapes will be read will be needed all over the school building, and that eventually each student might own one to be kept at home.

The teaching machines now available vary in size and complexity all the way from an 8″ x 8″ x 10″ box using a simple lens with ambient light and costing a few dollars, to large electronic machines costing thousands of dollars. Similarly, the purposes they serve will vary all the way from rote learning of words to exercises in the development of the student's ability to reason.

The physical requirements for teaching machines are, naturally, not well understood today. Most of them require electrical outlets. Some require a slightly darkened room, and some make enough noise to require especially sound-absorbent surroundings. Some generate enough heat to require artificially cooled rooms. There are those that are portable, others quite heavy and immovable. The kind of cubicle or carrel used in foreign language laboratories would seem to be appropriate for teaching machine use.

It is easy enough to discuss a reorganization of teaching methods, using new media to place the student on an independent study basis. All of these ideas could be put into operation today if the people involved—the administrators, teachers, librarians, students, and parents—would accept them. To be sure, we have good teaching machines but materials for them are still primitive. We have good television receivers but too few good teaching programs. We have good motion-picture projectors but not enough good films. These problems, however, will solve themselves in time.

The problems that will be difficult to solve will revolve around our lack of understanding of how to prepare the mass of students at the elementary and high school level for independent study. No doubt this is a process that must start in the very first grades and expand in scope and intensity up through the grades. This is exactly what the best teachers have always tried to do for their best students. The difference now is that the teacher has new tools to work with. We propose to use these tools for all students—good, bad, and average. The intent here is to show how the new ideas, machines, and learning materials might be used in a new kind of library setting. Some schools will be able or willing to adopt only a few of the suggestions offered. Others may try to go all the way.

The Individual Study Carrel: Unless independent study is made possible by giving youngsters the time and the place to work on their own, it becomes a matter of mere lip service. Today the student's typical day consists of six hourly periods. For each of these he goes to different classrooms and laboratories, to the gymnasium, and to the library for a study period. To accomplish practically the revised patterns of time and study proposed here, we would start by providing each student with a study carrel base. From this he would go to the other activities of his school day, some of which might be large group lectures, committee work, special projects, laboratory work, and sports. The youngster would spend part of his day at his study carrel where he would work with all types of carriers—books, teaching machines, records, tapes, radio, and individual television, movie, or slide projectors. When he needed guidance he would go to the teachers and teaching assistants who would be in charge, as they now are, of his learning progress. That progress would be judged on the basis of evidence submitted in regular examinations, oral and written reports, personal conferences, and teaching machine scores. When he needed study materials or bibliographic guidance he would go directly to the materials or to the library staff, which has the same relation to the materials of instruction as the teachers do to the content of instruction. Each is master of his part of the learning situation.

In the beginning stages of such a program, both machines and materials might be checked out at the library's circulation desk, just as books and printed materials are checked out. The student would carry the equipment to his carrel, use it there, and return it to the desk when finished.

Should the media program and collection grow extensively to the point where it might involve thousands of tapes, records, kinescopes, films, and the like — and should the size of the student body warrant it — the school might consider some means for transmitting information electronically from a central storage bank. There is a variety of such systems, some simple and others highly sophisticated, but their common denominator is that the student or teacher can recover information without handling the hardware in which it is stored. Rather, he signals an electronic control room where materials are kept, and the program of his choice is transmitted to him. In that case the carrel is fitted with a television screen for the reception of visual materials, headphones for sound, and a telephone mechanism or dial system for communication with the control room. These are fixed components of the carrel. (Via such systems, connected with the school's public address system, the teacher could also receive information in the classroom.)

The growth pattern in some schools might evolve as a combination, with both the check-out of portable equipment as well as a central electronic system for transmitting information. If the school foresees such a pattern of growth, it should plan for the use of both types of carrels.

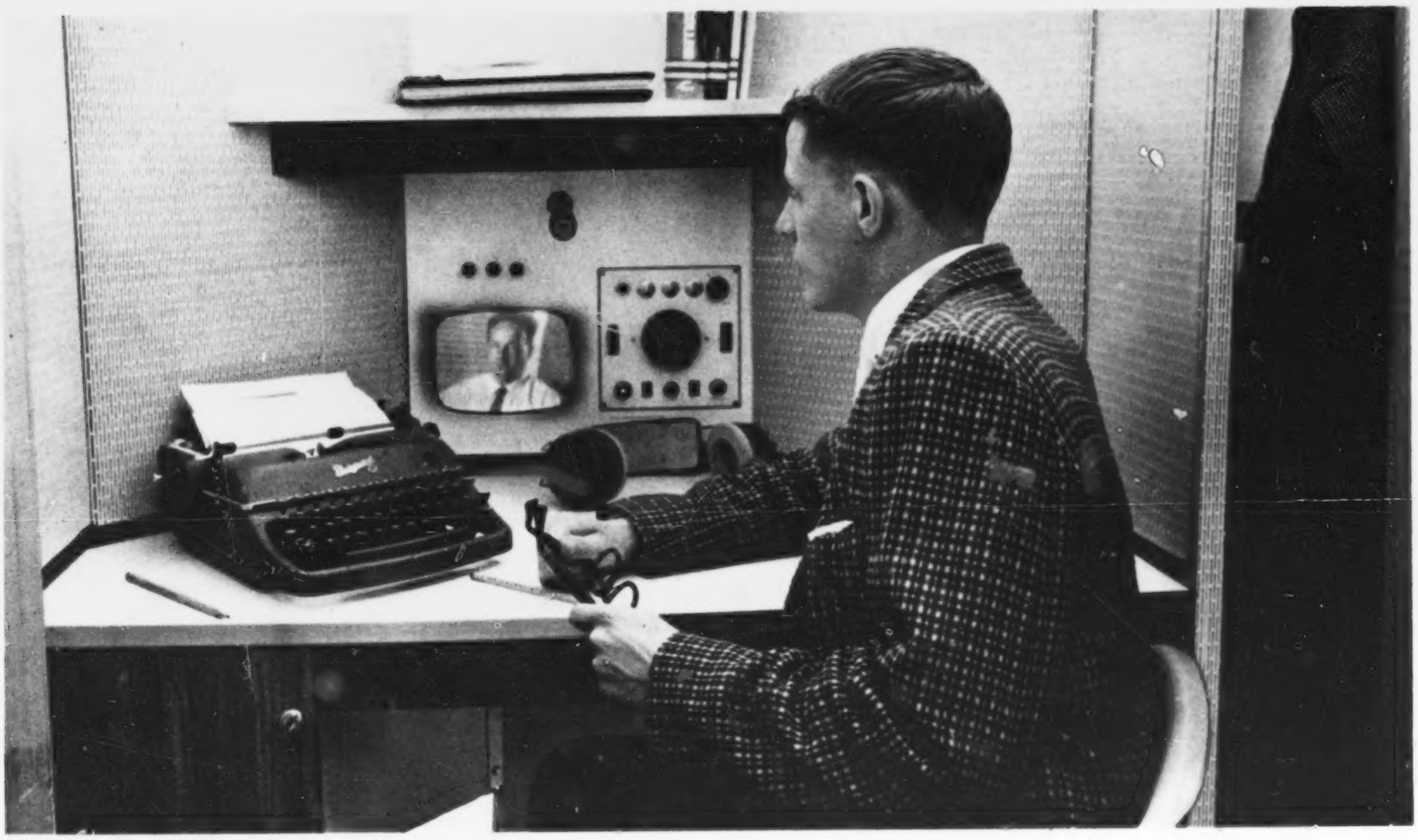
In either case the carrels can be movable, an important consideration in the flexible arrangement and use of total library space. Their dividers would be of several types, some supporting a book shelf, some containing cabinets or lockers where the student might store his materials between work periods without having to go through the tedious task of assembling them each time.

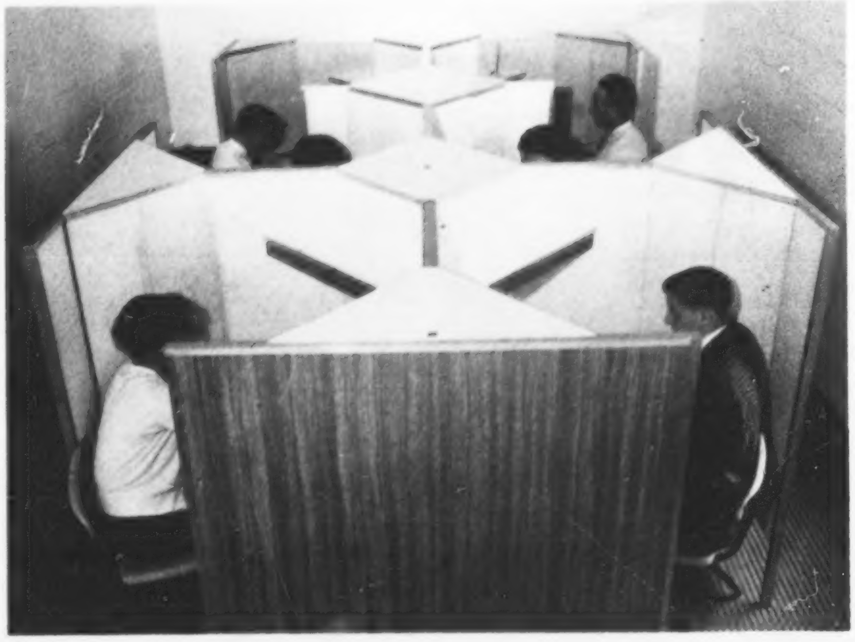
Because the cost of providing each student with his own study carrel is likely to be well beyond the means of many schools, some carrel dividers could be designed to contain two storage cabinets to permit double use of the space. Additional cabinets for triple use of each space could be hung on the uprights of adjacent book stacks.

If the student were to spend 40 per cent of his time in independent study, the school would need to make only double assignments of each carrel. (For more on this subject, and instructions for fabricating inexpensive do-it-yourself units, see pages 56-69.)

Since the study carrels are intended to be grouped in or near blocks of books, they would already be part of the library. Auditoria, music rooms, laboratories, and special classrooms would not be in the library section of the school building, but would have their own specialized quarters. It is possible, though in our judgment undesirable, to group study carrels in special rooms outside the library. The weakness of such an arrangement is that it separates the student from the library collections. Moreover, with regard to student traffic and behavior, if the carrels are an integral part of the library, students would be influenced by the decorous atmosphere of the library itself. This in turn would help to establish desirable behavior.

The physical library setting needed for this concept of school organization could be very much like some of the new modular libraries found on many college and university campuses today such as Baldwin-Wallace, Louisiana State, Barnard College, the University of Michigan Undergraduate Library, or Oklahoma State.





(left) Study carrels. Do-it-yourself type. An inexpensive way of providing individual work spaces, these carrels can be made by attaching dividers to ordinary library tables. Designed and tested at the University of Colorado Library as a prototype, they will accommodate portable machines, are movable. Variations on the scheme, Pages 56-59.

(above) Part of a complex communications system, these carrels to be installed at Grand Valley State College contain fixed mechanical equipment. Student uses dial to signal control room for program of his choice. Note lockable storage cabinet, book space, and coat closet. (right) A cluster of carrels. Entire unit is movable.

CENTRALIZATION AND DECENTRALIZATION

THE ANATOMY OF A LIBRARY

The problem of organizing a library and the other school building spaces to accommodate the concept of learning this report is concerned with, is not simple. There has been an easy suggestion made in some quarters for a decentralized system to meet the requirements such a concept imposes. Based on a definition of the library as being that section of a standard library which contains the card catalog and the reference collection, it proposes that the latter be set up in one place and that the book and materials collections themselves be decentralized on some kind of subject divisional plan—the social sciences, the sciences, and the humanities, perhaps. Teachers would be in charge of the collections in their subject division.

This plan sounds neat. But in practical terms it won't work, except in the most unusual circumstances. Here are the reasons.

Knowledge Cannot be Compartmentalized: Because of the interrelations and overlapping among branches of knowledge, one who starts to pursue the literature of a problem will find himself consulting materials in more than one subject classification division. If the collections are so dispersed throughout the building that the student must go to many places for his material, the process of hunting defeats the purpose of the hunt.

Colleges and universities have tried many different combinations of centralized and decentralized libraries and know a great deal about the advantages of each. They are moving more and more towards centralization, at least within divisions, because scholars find it necessary to pursue knowledge into subject areas that are outside the researcher's starting point. This interrelationship is well stated in the following excerpt from Yale University's *Graduate School Newsletter*.

> "The increasing demand for scientists and social scientists is recognized by all. When we find a senior member of Yale's Philosophy Department working with engineers in the development and use of high speed computers, we are reminded of the complex interrelations of knowledge and of the artificiality of any division of our Faculty of Arts and Sciences into three or any other number of components. The era when a single man of the stature of Yale's great William Graham Sumner could presume to encompass the fields of economics, political science, and sociology is past. But knowledge has not been, nor can it be, compartmentalized even though for administrative purposes we have been forced to departmentalize the University. As we proliferate departments, we find that many scholars and teachers sit uncomfortably within departmental boundaries. In their research and in their teaching they reach out in many directions. We find philosophers and sociologists working together on fundamental problems of concept formation; engineers, mathematicians, linguists, psychologists and logicians on the problems of underde-

> veloped areas. It is this interrelatedness of knowledge and co-operation in learning that gives a great university unity. It is a function of the university in turn to recognize and foster these relations."[8]

At the high school level, of course, the impact of these interdepartmental relationships will not be felt as sharply as they will at the university level, but they are present nonetheless.

Decentralization Costs Money: A second aspect of the matter is cost. Decentralizing is expensive because it increases basic costs in two ways.

Staff. Most schools thus far have not been able to afford *one* library staff that can adequately meet the needs of student and teacher where self-instruction or independent study is emphasized. How can they afford three or more sets? In a very large school it may be that a decentralized staff will not raise costs very much. But for every school that is large enough to afford these expenditures, there are hundreds that cannot.

Administrators are sometimes tempted to minimize the importance of a library staff and to assume that teachers can provide the reference or bibliographic guidance that is needed. We urge caution on this point. In the first place, teachers do not know how to give this service. In the second place, they don't have the time.

Materials. Books, records, and other materials—and the space they occupy—will cost more in a decentralized system than in a centralized one because the former requires much duplication that is not necessary in a central library. Since very few existing school libraries possess nearly enough books and other materials to sustain an enlightened program of independent study, administrators should make certain that a decentralized library system does not further impoverish an already inadequate collection. Decentralizing a too small collection and failing to staff the system adequately, raises more problems than it solves.

The Anatomy of a Library: To divide a library into one section containing the keys and a second containing the collections is extremely unwise. The reason for this lies deep in the nature of what a library is. Its keys just cannot be decentralized easily, nor can the specialists who know how to use them. Because this is frequently not understood by school administrators, a digression on the anatomy of a library may help to clarify it.

There is an inevitable sequence of arrangements of the elements that make up any library, which has its origins in the use people make of books and library materials.

The Keys. When people go to a library they use the keys to help them find the information they want. These keys are of various kinds, each uniquely fitted to the particular manner in which information is stored in the various subject fields. Each has been refined and developed on the basis of librarians' long experience with readers' needs.

There are two basic types of keys: the first, called catalogs, lead to the contents or resources of a specific library; the second, called bibliographies, lead to the universe of knowledge without regard to any one specific library.

Catalogs are usually compiled by the staff of a specific library and consist of cards arranged in alphabetical order, revealing the contents of a specific library in three ways—according to the authors of the books in the collection; according to the titles of the books; and according to the subject content of the books. Similar information for films, records, tapes, and other audio-visual materials is also recorded on cards, and these are an integral part of the catalogs. Sometimes, large libraries like the Library of Congress or the British Museum compile their catalogs in the form of printed books, which other libraries can buy.

Bibliographies are compiled by national or international organizations and are published in the form of printed volumes. The materials indexed are not necessarily owned by any one library. The purpose of a bibliography is to tell you what information exists, not to tell you what information a specific library owns. That is the function of the catalog.

Every library large enough to justify the name has to have a catalog of its own collections. The number of bibliographies a library will own depends on the size of the library, its income, and use.

The Carriers. As already described, information is stored in various kinds of carriers: books, magazines, newspapers, pamphlets, official government documents, pictures on paper or canvas, posters, maps, slides, phonograph records, tapes, and various kinds of film —moving or static, silent or with a sound track.

Each type of carrier has its specific purpose, and one of the learning skills the modern student must acquire is the ability to determine which of the various types of carriers will yield the kind of information he wants.

Books tend to be used to record the well-established, stabilized knowledge man possesses, including the so-called literary forms: novels, plays, or poems.

Magazines tend to be used to record new knowledge that is not stable enough to be formally recorded in book form. They also are used to record the results of new research as well as short stories, poems, essays, and plays that are too short to make up a printed book.

Books and magazines may be preserved on microfilm or microcards. Plays and poetry are sometimes recorded on phonograph records or tapes. Whole books are now put on tapes and records for the blind.

A motion picture or a television-projected image, as a carrier of information, serves a different purpose from that of a book made up of print and pictures. It is its own kind of art form, usually combining verbal and pictorial presentations, and it usually records some kind of action and talk, although the talk may be words printed on the film. Its purpose is to "show you how" as well as to "tell you how." The "showing" may be presented in the form of a drama, or a recording of an act—the filming of a surgical operation on a man's heart, for example. It may be factual or imaginative.

Literature presented as words in a printed book cannot be re-created in the form of visual pictures and words—as a drama—without acquiring new characteristics not possessed by the original book. Nor can an original or "creative" motion picture be re-created as a book of words without acquiring new characteristics. A re-creation may be "better" or "worse" than the original, but it is different and cannot be a full substitute for it. The following excerpt from an essay by Harry Golden, called "Nothing Has Been Invented to Take the Place of Reading" makes this point well.

> "It takes a long time to read a book and we are afraid if we don't understand the book at once our time will be wasted. We have entirely too much concern about making books assimilable. Every man is better for reading a book he doesn't understand.
>
> "When I was a boy on the lower East Side of New York City we used to meet each other and ask: 'Have you read it yet?' We were talking of Victor Hugo's *Les Miserables*. We knew it was an important book and that it would have a profound influence on us so we went in training to read it. It was a happy day when we were able to answer, 'Well, I read it.'
>
> "There is a great difference between reading *Les Miserables* and seeing Frederic March and Charles Laughton in a rerun movie on the late show. You could watch March and Laughton twenty times over and you still wouldn't know a thing about the book. There are no short cuts: you must read it. There is a relationship between the eye and the printed word that defies coherent explanation.
>
> "Carl Sandburg in his biography of Abraham Lincoln mentions that men in both the Confederate and Union armies read *Les Miserables*. They read it in a cheap, pirated edition called the Volunteer's edition. So widespread was the book's popularity, that these soldiers would call each other the names they borrowed from Hugo's characters. Over the tough winter of 1864, the Confederate soldiers nicknamed themselves *Les Miserables*.
>
> "No matter how artfully the audio-visual interpretation presents *Les Miserables*, it will not pay off. You will not remember that Hugo wrote, 'Every man a property owner, not one a master.' Nor will you remember that in one of his introductions he wrote: 'I banish poverty, I instruct ignorance, I heal sickness, I hate hatred, this is where I stand and this is why I wrote *Les Miserables*.'
>
> "You are alone when you read this and you cannot duplicate the same process in a mass audience. When you are in a mass audience you gain anonymity; when you read you gain an enlarged identity. You learn different things and in a different way. Trying to learn everything the same way is like learning the multiplication table and trying to determine the physical laws of the earth with it . . . . "
>
> —*The Carolina Israelite*, May 14, 1961

The Library Staff. All of the different carriers of knowledge have to have special indexes as keys to them. The particular competence of the librarian is her mastery of the keys. She knows which ones exist and how to use them. There are thousands, and a lifetime of study is required to learn them all. The teacher cannot be expected to know all of the keys there are to know, although she may be a specialist in the knowledge of one subject field. The librarian knows the keys to all fields. That is what one learns in

library schools. The teacher expects to find the services of a librarian available to students, and such service must be available if students are to get the most out of their studies.

One of the serious gaps in the educational process at all levels is our failure to develop in students a "feeling for the hierarchy of sources," that is, a feeling for the different types of informational sources that might be used to satisfy a wide range of needs for information. What kinds of sources, for example, shall the student use for factual information as contrasted with the kinds of sources he might use to build a sense of values? The difference between teaching and indoctrination is difficult to establish unless teachers can differentiate among the kinds of evidence that are relevant. These things can best be learned in a setting that forces the student to handle all kinds of sources—a well-organized library.

Schools that are seriously concerned with their responsibility for the transmission of knowledge will be expected to provide an adequate supply of the carriers of knowledge. This implies the existence of the normal keys to a library and librarians to help students use them.

It may also imply the services of a media specialist to devise means whereby information from all the electronic carriers of knowledge can be placed at the easy disposal of teachers and students. By virtue of special training, the media specialist is an expert in the technology of communication. It is his function to produce teaching materials for audio-visual machines, to design the component units of the system for recovering information, as well as the total system itself, to fit the media program to the school's instructional pattern, and to keep a weather eye on new developments in a rapidly expanding field.

In a small school the librarian or assistant principal sometimes takes over certain of these duties. In large schools, where the media program is a sophisticated one, it will be evident that this is no job for an amateur.

Relationship Between the Anatomy of a Library and Its Physical Decentralization. Clearly, the library is a combination of keys to the collections and the collections themselves. It would be as foolish to separate them as it would be if the telephone companies placed telephone directories on one side of a city block and telephone booths on another block. Both are part and parcel of the same service. Separated, the use of each is limited.

As stated earlier, there are few schools that can afford to provide either many duplicate copies of the keys or multiple library staffs. When funds are unlimited, of course, the obvious advantages of decentralization should not be denied. Indeed, it is understandable why school administrators have turned to the decentralized concept of a library as a plausible way of bringing library materials and people closely together, for it is obvious that the typical centralized school library as it is today is not satisfactory. The weaknesses, however, do not arise from the fact that it is centralized, but from the whole complex of other factors discussed in the first part of this report.

In view of all these factors, the schools will find—as have the colleges and universities—that the solution lies in compromise between complete decentralization and centralization. One way to

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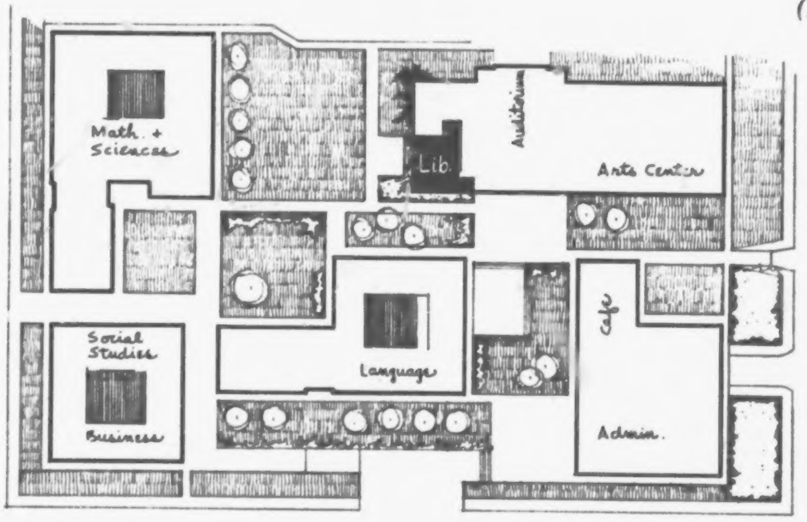

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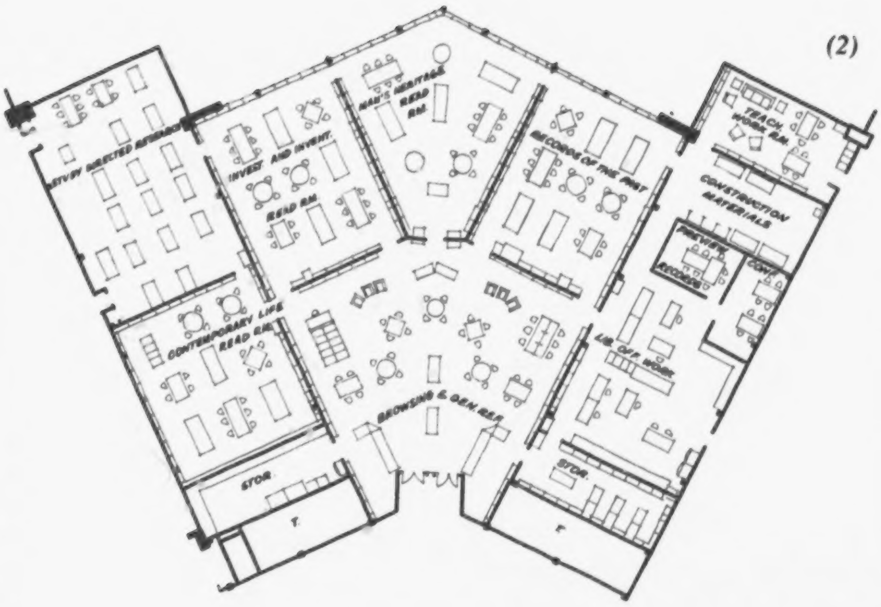


(3)

do this, in large schools, is to use the subject divisional idea with sets of keys and a staff librarian, assisted perhaps by an audio-visual technical aide, in each of the divisions. However, this arrangement will prove to be too expensive for small or medium-sized schools.

In these, a way of retaining the advantages of a strong central library to meet the needs of the independent searcher and the decentralized collections for stimulation of group teaching, is to have a central library that provides extensive book truck service to the points where teaching is done. In this kind of system, there should be a preparation room in the library where the library staff and teachers can assemble on book trucks or mobile carts the materials that are to be taken to a room for the duration of a project. (The book trucks, incidentally, should be designed with dividers or slots to hold film, tape, records, and instructional models, as well as books.) This takes time and money to do well. However, the possibility of providing high quality service at a cost the school can afford is probably greater in this system than in one that is highly decentralized, for what is likely to happen in the latter is that the school will try to get along without the services of an adequate library staff, and the needs of the independent student will be neglected.

It is well to note that in the lower grades the students will not need to go so deeply into sources, and their needs can be met by a generous collection of books and materials in the rooms where they are learning. In the higher grades, as the quest goes deeper, the materials cannot be dispersed in too many places.

(1) Decentralized library, Wayland Sr. H. S. Branches of the main library, located in the Arts Center, form the heart of each subject-area building in the school, designed for team teaching. (2) Centralized library at West Leyden H. S. arranges its space for four separate functions: a study and research section, special subject-area reading rooms, general browsing and reference room, and work areas for faculty and library staff.

(3) Book truck service—well-organized—can extend a centralized library to the far corners of the school.

THE PHYSICAL CONTENTS AND LAYOUT

This chapter is divided into three parts: facilities for the library-teaching staff, facilities for readers, and the library collections. Obviously the library exists in the first place as a facility for readers, and everything it contains is for the sole purpose of serving them. The division therefore is an arbitrary one, made necessary by the need to organize this material in some reasonable fashion.

Each section includes space requirements for the various elements of the library, along with the arrangement of these elements. It should be understood that the figures are intended only as starting points for planning, and they will vary according to each school's program. Those given here are considered minimal for a small library.

Part A. Facilities for the Library-Teaching Staff

The Keys (a facility essentially for readers, of course, as well as the library staff, but treated here in Part A because of their physical relationship to the staff quarters). The keys come in two forms—library catalogs in cabinets containing cards, and printed reference books (bibliographies) kept on shelves or on specially designed consultation tables. The card catalog, including a stand-up table, requires 100 square feet; the reference collection, 300 square feet. These are usually located close to the library entrance so they will be the first thing the student sees as he enters the library.

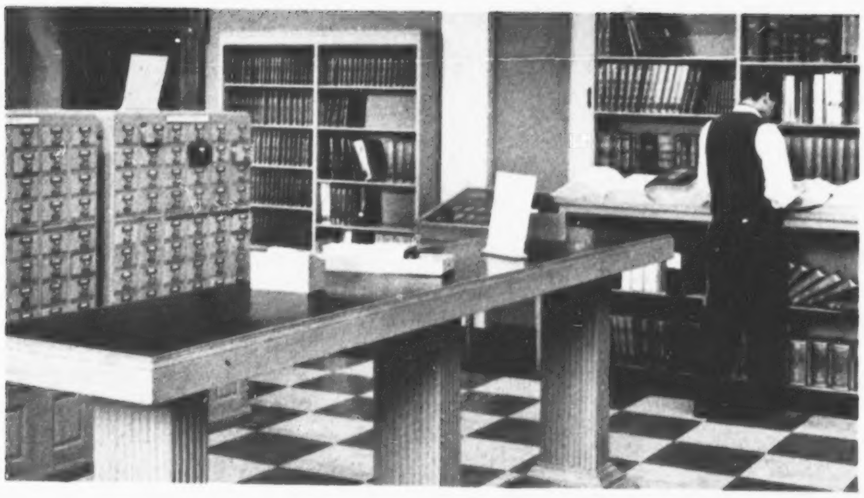
Reference Consultation Desk. There should be a librarian's consultation desk placed close to the keys so that students can turn to the librarian for guidance as they work with the catalogs, bibliographies, and reference books. One "consults" rather than reads the keys, and one of the functions of the librarian is to help students use the keys to select the materials they will find valuable in the pursuit of information. The keys are only starting points for quests that lead to the library collections.

The Circulation Desk. Here records are kept of the transactions in which materials have been taken from their regular place in the library collections. This, plus work area, requires about 10′ x 12′ or 120 square feet.

Quarters for the Staff. These consist of several parts.

a. Reference Consultation Room and/or Librarian's Office. This room should be behind the consultation desk and easily accessible to readers for discussion with the librarian of library problems that are either private or a source of disturbance to others. It should be located so that when the librarian is sitting at her own desk she can observe the charging desk and the public catalog. In smaller schools this may also serve as the librarian's office.

A school librarian should be expected to spend only one-half of her time on public service duty and should have the remainder of her workweek for the private study of materials. If she is to live up to her responsibility of being a reading counselor to students and a consultant to teachers on materials for the total instructional



program of the school, then she must be allowed the time and place to keep up with the contents of new materials.

Her office will need a desk and two or three occasional chairs. She will probably want a typewriter attached to her desk, and perhaps a dictating machine, as it is not likely that she will have a secretary. She will sometimes need to bring in a mobile cart of books or audio-visual materials with which to work in the office, and she should be provided with a bookshelf behind her desk. Space needed: about 10′ x 20′, or 200 square feet.

b. Media Specialist's Office. If the library staff includes a media specialist, he will require a work area that is the counterpart of the librarian's office. Here he would meet with manufacturers' salesmen, examine new types of hardware for possible purchase, consult with students or technical aides, and in general carry out his tasks as supervisor of the media program. Space requirements for this room are similar to those for the librarian's office, or about 200 square feet. Standard office furnishings would fill the needs here, with shelves or a cabinet to house machines or materials on their way through the office, and some electrical inputs at table height for testing manufacturers' samples.

Each other member of the professional staff, such as reference librarians, will need an office a minimum of 10′ x 10′. If the media specialist has technical aides to assist in the production of materials and maintenance of equipment, they would work in the technical processes room. In any case, the size of the total library staff will depend on the concept of the library that prevails. If it is to be the kind that is now found in a large majority of schools, the standards

(above) The keys: card catalog and reference section, University of Colorado Library; (center) Circulation desk, Knox College Library; (below) Librarian's office, New North Hills H. S.

as prepared by the American Library Association are probably too high.[9] If, however, it is to be the kind of library the administrators say they want and the kind the best school librarians want,[10] then the recommendations of the American Library Association are probably too low.

c. Storage Room for Audio-Visual Equipment and Materials. This is home base for the school's collection of portable audio-visual machines and the materials to match. It should be located adjacent to the circulation desk for easy accessibility by the charge librarian, as this is the source to which she will go to procure the machine and material a student may wish to check out. Minimum space allotment: 200 square feet. A description of the specific machines that will be stored here, as well as storage furniture appears on pages 79-81 in the discussion of library collections.

d. Technical Processes Room. A room is needed where the acquisitions of the library can be catalogued, where maintenance work can be done, and where teaching materials can be produced. In a large school these activities would be housed in separate rooms. In smaller schools they can be combined in one large area which should be carefully zoned according to function and subdivided for certain activities. Here are some of the functions of this room, along with the necessary facilities.

Cataloging and repair of library materials: Now that it is possible to purchase most of the books and films a school library will buy with the cataloging already done, this area can be much smaller than it had to be in the past. Required for this are a large table with a marble or wood surface that can be scraped clean; a sink; a typewriter; shelving space for storing pamphlet boxes, book repair equipment, glue pots, erasers, and other supplies. Books and materials that go through should be kept on book trucks, not on wall shelves. Cataloging will be done from the trucks.

Production of teaching materials: The facilities will depend on the variety of materials that will be produced.

Graphics—Transparencies of pictures or diagrams for use with overhead projectors or slide viewers require a 35mm. camera; a microfilm camera for miniaturized duplication of materials, and a photocopying machine will be required as well. (Some offerings on the market combine one or a number of these operations and should be investigated.) For this work a darkroom will be necessary. It can be a subdivided corner with light control. Conventional darkroom equipment such as a sink, enlarger, printing box, and dry mounting press for photos and other display materials, will be needed. The sink should be carefully selected for size, and it should have temperature control.

Printed materials—Supplementary reading pieces from magazines, papers, and other sources, will be duplicated by a ditto, mimeograph, or photo-offset machine.

Audio-production—Records and tapes will probably be duplicated here, too. Recording equipment can be contained in a special cabinet in which a number of recordings can be made from one master without removing the equipment from the cabinet. If original recordings are to be made, a totally soundproof cubicle should be provided.

Drafting tables or horizontal work surfaces, and electric outlets placed at table height should be plentiful.

The variety of functions that are combined will determine the amount of space needed for the total area.

e. Teachers' Preparation Room. There should be a room in which library personnel and teachers can get together to discuss instructional material. The teacher may describe an instructional unit he is planning and, together with the library staff, draw up a list of relevant materials to be taken from the book stacks or equipment storage room for temporary use in the teaching laboratories and classrooms. Another teacher may come in to look over a book truck of books and materials the staff has assembled for a project. He may find some acceptable and remove others from the truck. The librarian would then charge the truck load to the classroom where the materials would remain for whatever time was deemed appropriate. Still other teachers might come in to examine, for possible purchase, a new encylopedia or help evaluate a gift collection of books received.

This room should be flexibly arranged so that one teacher can preview a film while another might be listening to and evaluating a tape or record. The audio would come through earphones. Light control should be arranged so that lights in one section can be dimmed for film watching without affecting other parts of the room, and the viewing area might possibly be separated by a movable room divider.

This room will serve other functions as well. Here the library staff will meet faculty committees from the various subject fields to discuss the way in which acquisition funds are to be spent, the books and other materials to purchase, which magazines are to be bound, which periodical articles are to be clipped and bound separately. The selection of pamphlets for topics of current interest will be made. The staff will show teachers the new material that has come into the library, will discuss weaknesses in the collection with them, and decide what materials should be locally produced.

The media specialist and librarian will advise teachers on materials appropriate for classroom use, for small group study, and for individual work.

In sum, this is the room where the library staff and teachers plan the activities the library is expected to carry out.

The size of the room will be determined by the amount of work of the above kinds there is to do. A room 15′ x 20′ is minimal. Essential equipment consists of a couple of tables and chairs for four, plus wall bookshelves and diversified mobile carts.

f. Studio and Control Room. If a studio already exists in the school, it should remain where it is. If one is being planned, it should be included as part of the library and located next to the technical processes room and the media specialist's office.

It is in the studio proper that the production of motion-picture and closed circuit television programs takes place. In a large-scale operation the control room usually is a separate entity, but in smaller schools it can be combined with the studio. The transmission to classrooms and carrels of live studio-produced programs and prerecorded kinescopes, viedo tapes, motion-picture films, and the like, all part of the central information transmission system, emanate from here. The electronic controls for the school's public address system would also be housed here.

Special engineering, soundproofing, and lighting advice are necessary for these installations. The space provided should be at least 25′ x 25′ with a high ceiling for overhead lighting.

Part B. Facilities for Readers

Over-all Space Requirements. In regard to space allotments for readers, if one were to predict the future from the experience of existing schools the prospect would be dreary indeed. Fortunately, the limitations of the present need not govern plans for the future.

Colleges and universities now assume that their libraries must seat 30 per cent of their enrollment at any one time, and some are planning for 50 per cent.

The usual school library, as we see it all over the land, with seats for less than 5 per cent of the enrollment (the assumption being that students will use their few free study periods to study wherever they can, but not in the library) is not a library at all in the sense that this report uses the term. That it was ever satisfactory, regardless of the philosophy of education it was meant to serve, is doubtful. But certainly it is of little use to a school that is trying to meet the needs and wishes of an American public that wants its educational institutions to pursue academic excellence. Administrators, teachers, librarians, school boards, and parents should be prepared to face this fact and its costs.

To persuade the American public to pay for school libraries that provide seats for 30 per cent of the enrollment is not an easy task. Perhaps the ratio will have to be approached in stages. With proper planning, during the early stages of a school's life the areas adjacent

Studio control room, University H. S., Minneapolis.

to the library could be occupied by classrooms or similar types of space. As the school develops, the library could move into these areas without high remodeling costs and expand gradually. (Care should be taken not to surround the library with space that cannot be incorporated into it, such as bearing walls that can't be removed, laboratories, toilets, or kitchens.)

In a school that stresses independent study and freedom for the student to progress according to his ability and determination, the ratio between the amount of time a student will spend under organized teaching supervision and on his own will approximate the college proportion—15 to 16 hours per week in the classroom for lower division level, and 9 hours for students who are capable of taking on independent study. It has been traditional for college students to spend 3 hours studying for each hour of classroom teaching. With a similar ratio in the high school, a library capable of accommodating 30 per cent of the student body is not an unreasonable goal.

Obviously this conception of teaching and independent study cannot be started full-blown at the secondary level on top of a system of elementary education that follows a different philosophy. The idea must be started in the elementary school and allowed to work its way up into the higher levels before completely satisfactory results can be expected.

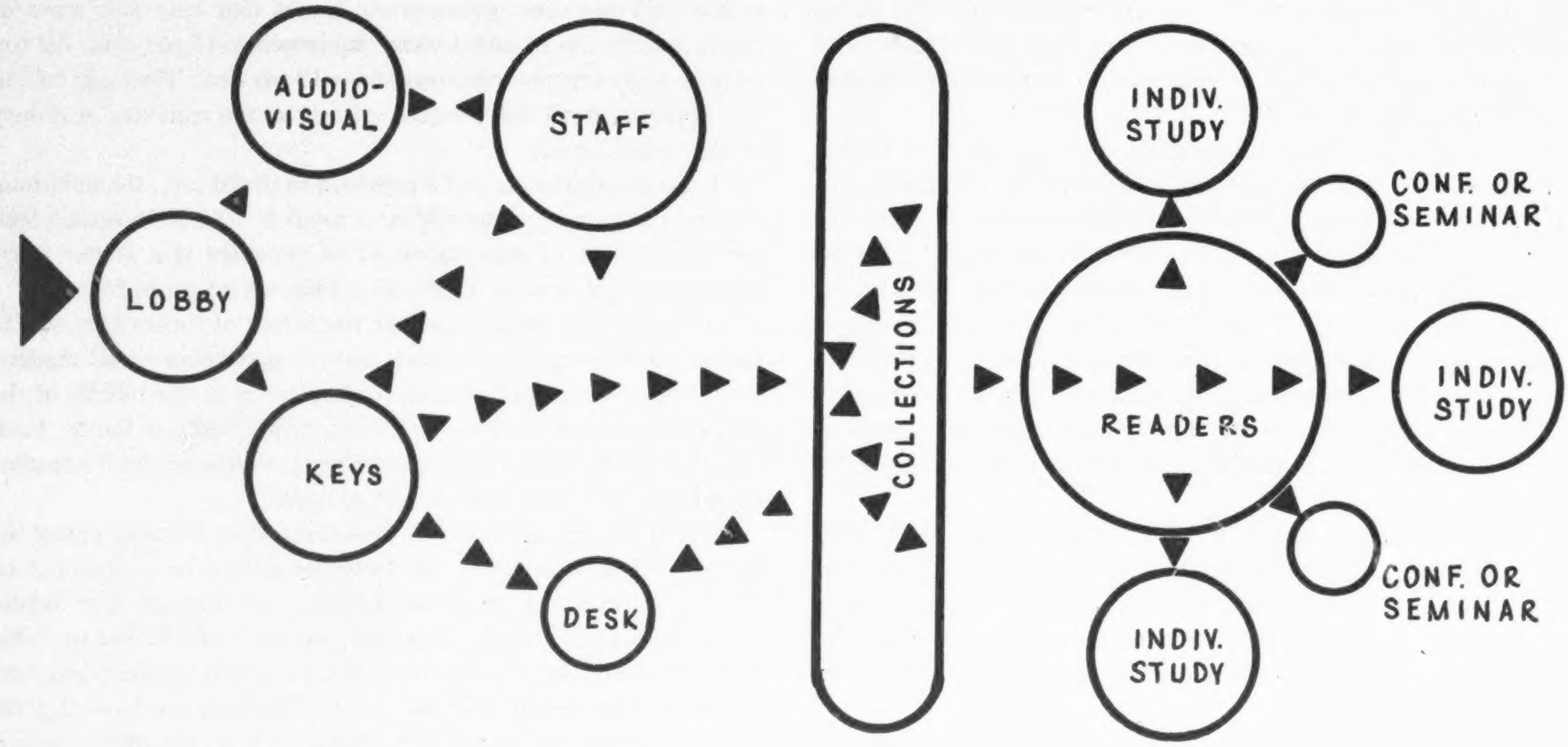
Assuming then, that the school figures—as it should—on seating at least 30 per cent of its enrollment in the library, since one reader requires a minimum of 25 square feet of floor space, a school with 2,000 students would require 15,000 square feet for readers (30 per cent of 2,000 = 600 readers x 25 square feet = 15,000 square feet).

Total reader space should be apportioned as follows: study carrels—60 per cent; group study rooms that may also serve as rooms for the use of audio-visual equipment—15 per cent; flat top tables—8 per cent; lounge furniture—17 per cent. The logic behind this apportionment will become evident as the activities of library readers are discussed.

If faculty studies are to be provided in the library, the minimum amount of space required will be a room 6′ x 8′ or 48 square feet, but the number of such rooms to be provided is a matter to be decided by each school. There are no known norms to follow.

Layout. A key consideration in the layout of furniture is how to permit students to move about without disturbing other readers. The present method of placing reading tables in the middle of the room with bookshelves on the surrounding walls is faulty. Each time a student comes into such a library he has to disturb readers by walking past their tables to get to books.

This arrangement should be reversed. After a reader enters the library and has consulted the keys, he should be confronted by rows of bookshelves. He should have to pass through these before he can find a place to sit down and read the books he got from the shelves as he passed through them. Books should be shelved in rows of grouped bookcases that are located between the keys and the reader facilities. The grouped bookcases can be placed in checkerboard or other similar patterns so as to break up a large area into smaller reading or study areas, but care should be taken not to force students to walk between reading tables.


AUDIO-VISUAL
STAFF
LOBBY
KEYS
DESK
COLLECTIONS
INDIV. STUDY
CONF. OR SEMINAR
READERS
INDIV. STUDY
CONF. OR SEMINAR
INDIV. STUDY

LAYOUT AND CIRCULATION

(above) The layout, a critical factor in how a library works, should zone areas according to function. Circulation flow that routes student traffic from entrance to keys to materials to reader spaces, as shown, will make for proper use of library's facilities.

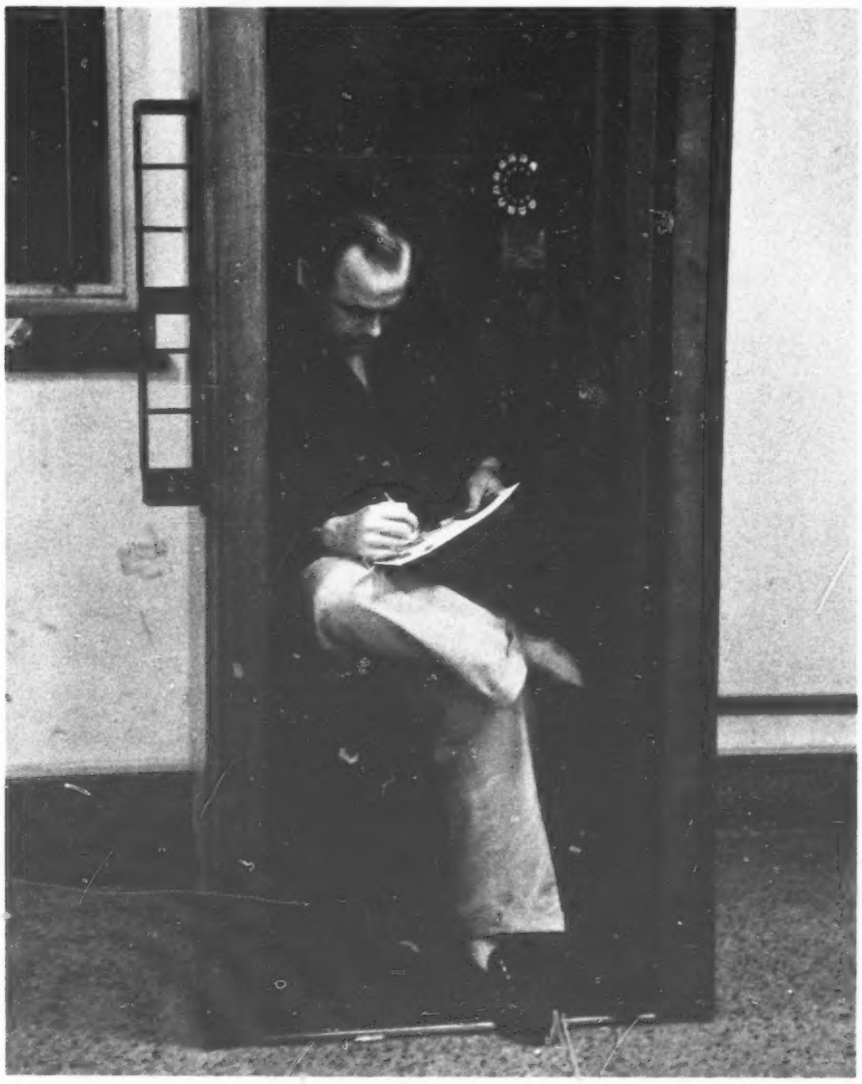
(right) Students don't like large, open reading rooms either.

Neither is it wise to intersperse single rows of books with tables between the rows in the form of alcoves, because this pattern forces readers to walk around the tables to get at the books, thus causing disturbance to other readers.

Care should be taken, too, to place the blocks of books so that the reader will find no difficulty in following the classification number sequence of the books themselves. Otherwise the process of locating books becomes extremely difficult.

The diagram at the left illustrates a proper relationship.

Reader Activities, Furniture, and Equipment. Once the student has consulted the library keys and ferreted out those books and materials which contain the information he wants (he may also discover this from other sources, of course) he goes to the library collections. These, to repeat, consist of all types of carriers of knowledge.



Assuming that the library contains the materials he wants, he may use them in one of many ways.

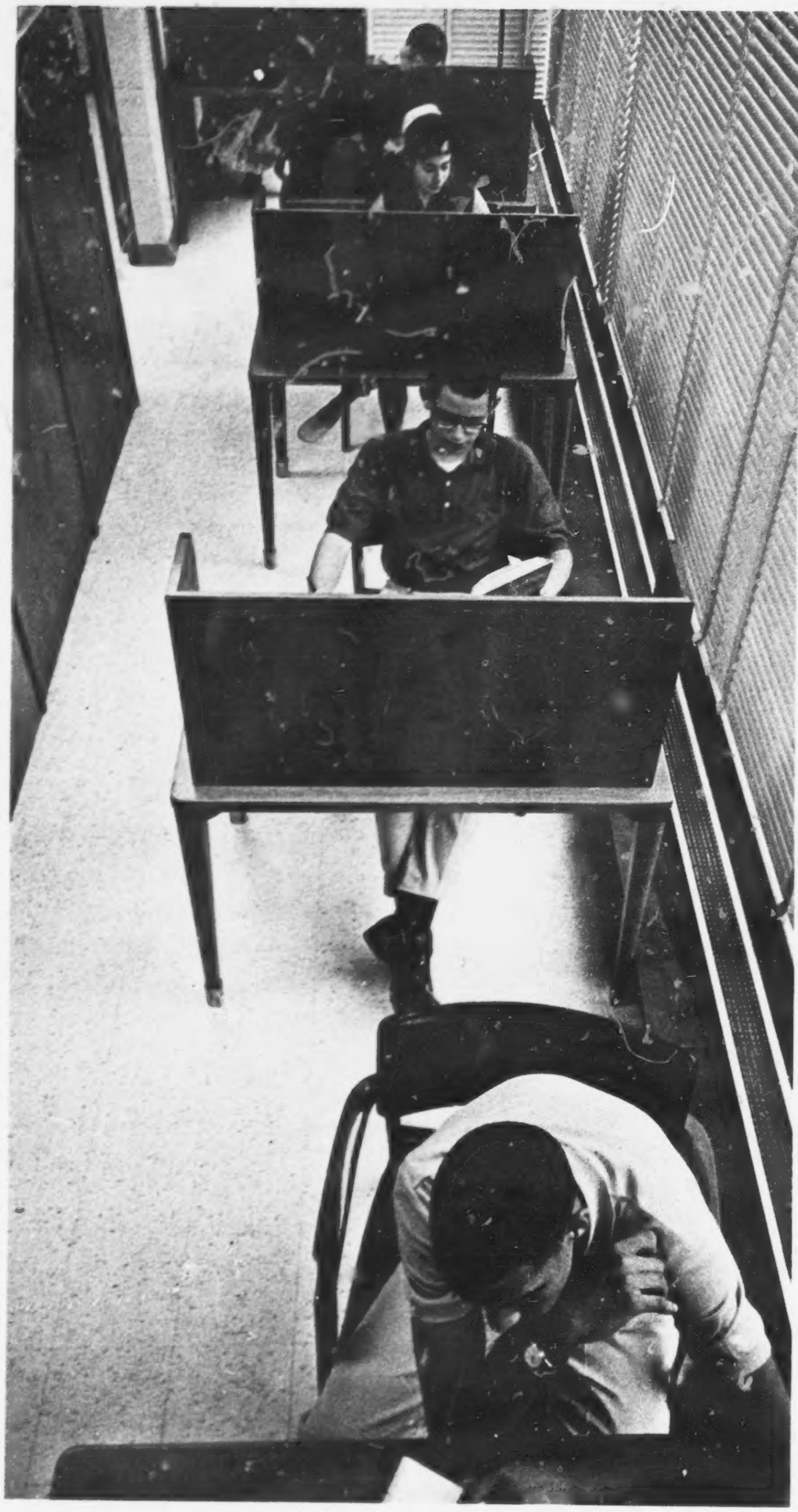
- He may take a book home for study.
- He may sit down and read on the spot.
- He may use the reference collection to verify a date, look up the population of a city, or read a summary of a novel.
- He may want to take notes as he reads.
- He may want to go into a small group discussion room where he can discuss a book with others, or even practice reading out loud.
- He may need to ask questions of librarians or teachers about what he reads.
- He may want to use machines—typewriters, calculating machines, teaching machines, phonograph record players, etc.
- He may want to take a book to a classroom or a laboratory.
- He may want to stretch out in a lounge chair and read in a more "horizontal" manner, as he would at home.

Each of these types of use calls for different kinds of spaces, equipment, and furniture.

a. Study Carrels. It has been proven again and again in college libraries that students don't like to sit and read at flat tables in the middle of large, open reading rooms.[11] They like privacy and the intimacy of small groups. Thus, most of the study space—60 per cent in fact—should be in the form of study carrels in groups of not more than 15 or 20 infused among the collections. Each carrel should allow 2′ x 3′ of work space per reader, and more if learning machines are to be used.

Thus far, little thought has been given to the kind of study carrel that is envisioned for individual study space in schools. Some tentative examples are sketched in EFL's *New Schools for New Education.*[12] Several library furniture supply companies are now designing carrels as standard equipment, but most of these are inadequate in that they offer visual privacy by means of a panel in one dimension only, in front of the student. This can be partially remedied by attaching a bookshelf cabinet perpendicular to the panel, on either side of the reader space, in which case the top of the cabinet should not be higher than 18 inches above the table surface to avoid casting a shadow. At that, if the ceiling fixtures do not spread light evenly, additional light fixtures will be required in the carrels. In general, the commercially available carrels are not designed to meet the needs we think important. For this reason the prototype carrel design illustrated on pages 56-69 was developed for this report. There are two variations of the prototype. An exciting feature of both is that they make use of conventional library furniture: they are simply dividers that can be attached to existing library tables to provide visual privacy to both the front and sides.

The first, and simplest type, is for the use of all portable carriers. The dividers are of several kinds, varying from a simple partition that is acoustically treated or made from acoustic materials, to storage cabinets. A plug strip provides electrical inputs at every station for the use of electric devices, as well as jacks for connection with the building's master television antenna. Since the dividers can be moved to suit the space needs of the reader, the size of the carrel can be changed if two students wish to work together or if a particu-



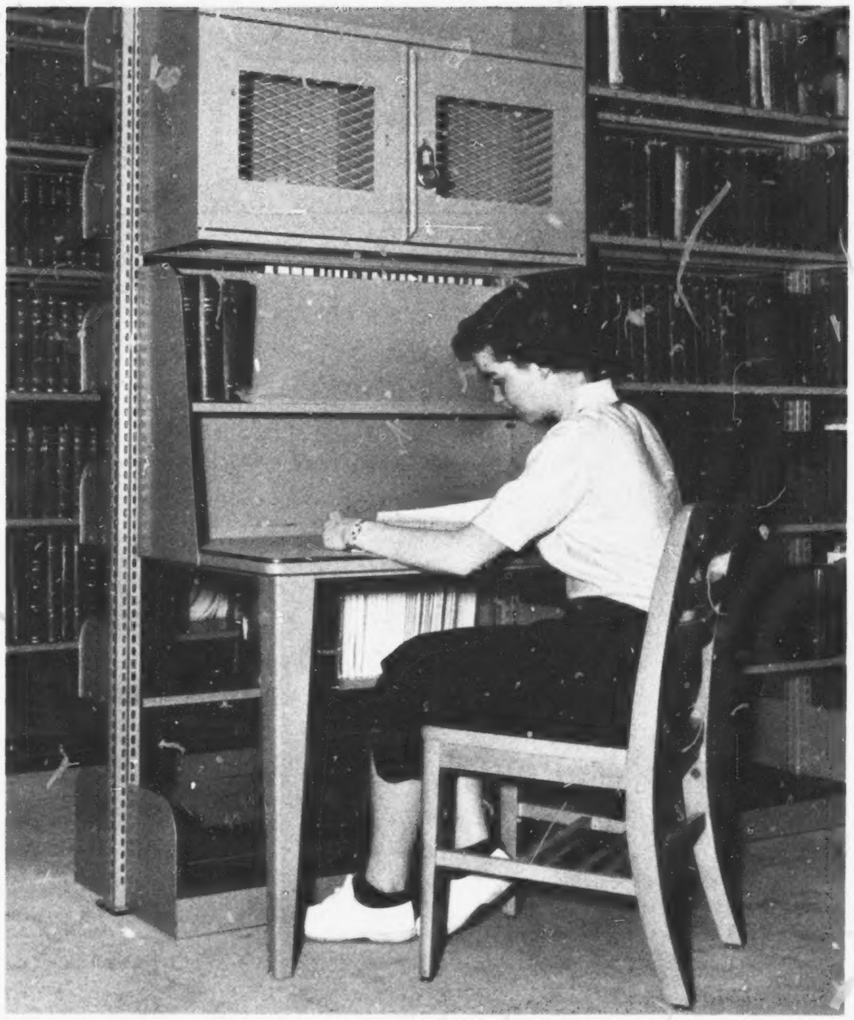
lar student project requires more than usual surface space. (Photo, page 34.)

The second type of carrel uses the same principle, but is somewhat more complicated. Each carrel contains a mechanical core and fixed equipment for receiving information sent to the carrel electronically, from a central source. Jacks here connect with the school's closed circuit television system.

Although the cost of the carrels for the use of portable machines can be low, some schools will not be able to afford one for each student even if the school intends to go all the way in using machines for individualizing instruction. As pointed out in the previous discussion on carrels, one way to solve this problem is to make double or triple assignments to a single carrel. By giving each student a place to store his personal things in a portable cabinet or locker that is hung on a book stack upright near the carrels, two or three lockers per carrel could meet the problem of cost until such time as the school can afford a carrel for each student.

For schools that cannot afford even this much, the library should simply contain as many carrels as it can afford. Then students could be assigned a bookshelf, in a nearby bookcase, as a place to keep their books and personal things. This of course is not too satisfactory as students risk the loss of personal belongings left on open shelves, but it is an inexpensive halfway solution.

Additional carrel designs, from the simple to the sophisticated, are offered in *Study Carrels-Designs for Independent Study Space*, produced by EFL's Western Regional Center at Stanford University, Stanford, California.



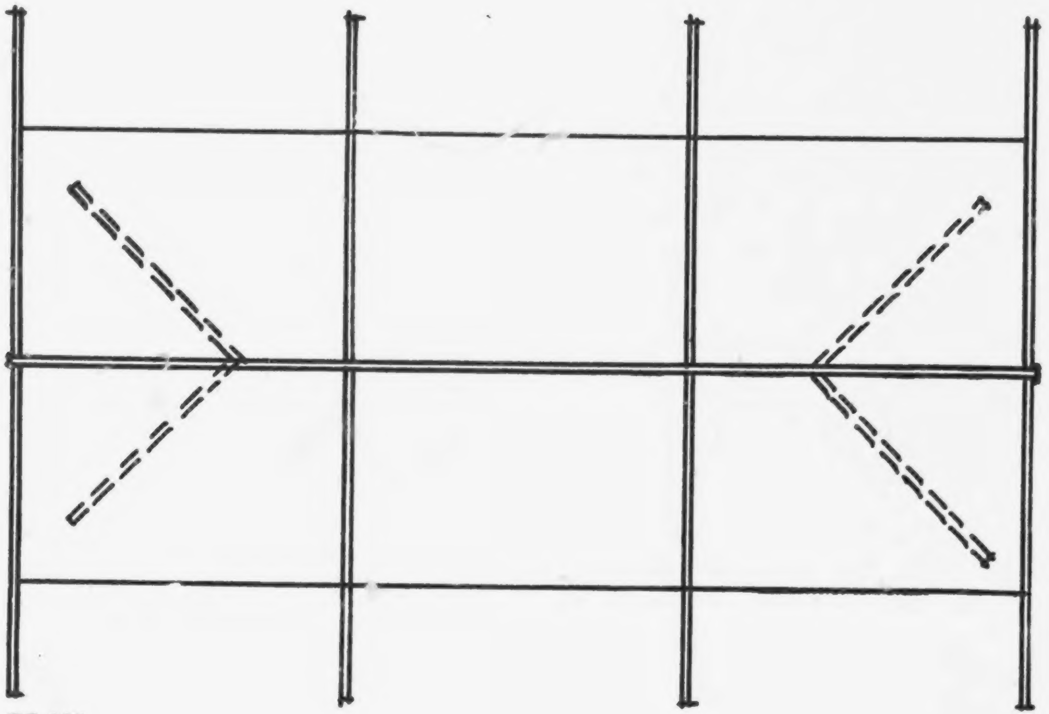
(left) Carrels on periphery of a stack area, University of Chicago Laboratory H. S.

(above) Lockable cabinets for books and personal belongings can be hung on book stack uprights, near carrel clusters, to increase the number of students assigned to a carrel. This one hangs above a stack carrel in the Crosby Library, Gonzaga University.

STUDY CARRELS

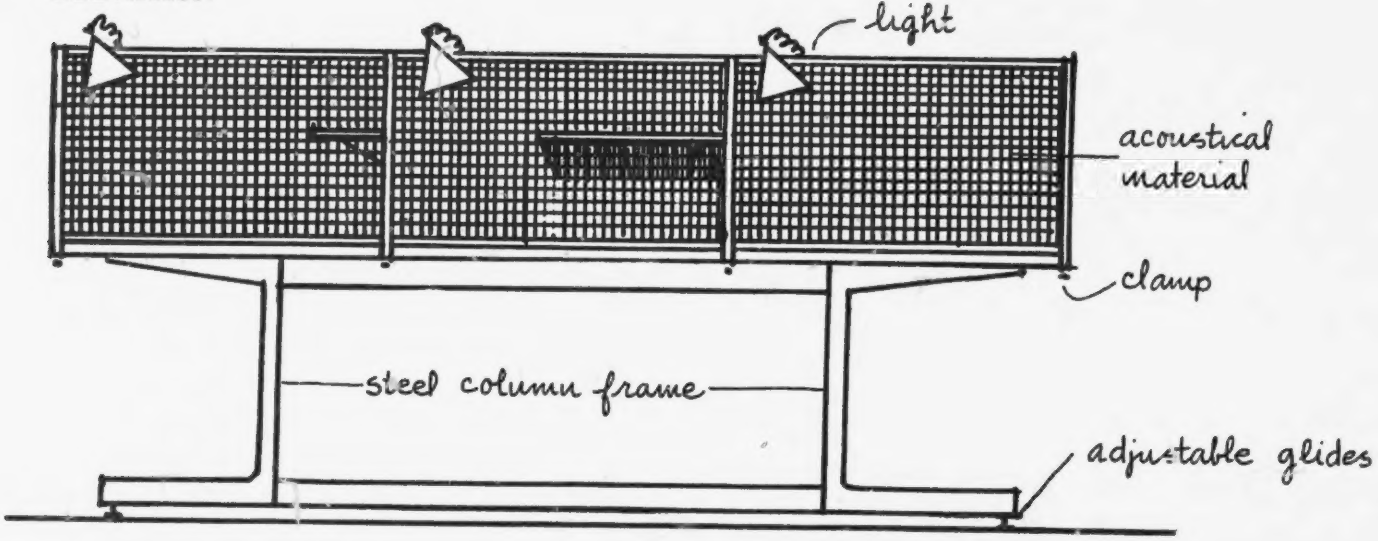
Design concept based upon the subdivision of any conventional library table by the use of "home-made" panels and/or cabinet-shelf storage units.

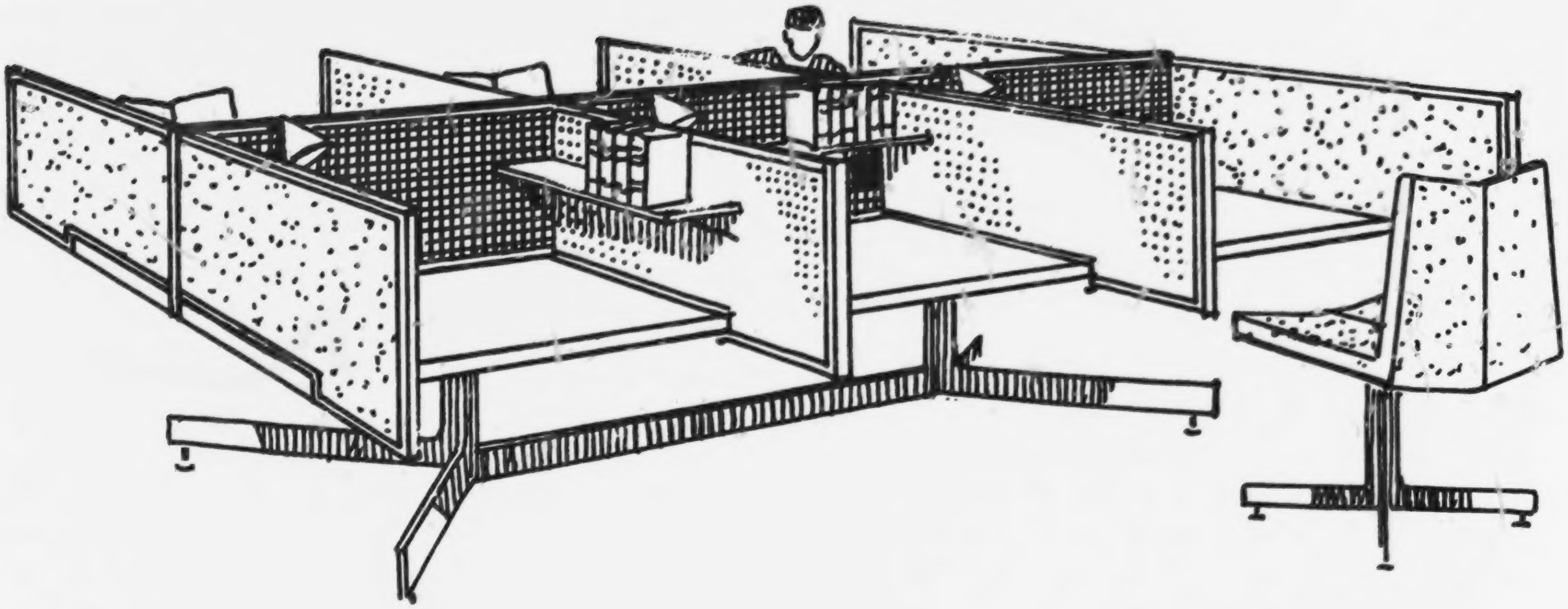
CARRELS WITH PANEL DIVIDERS

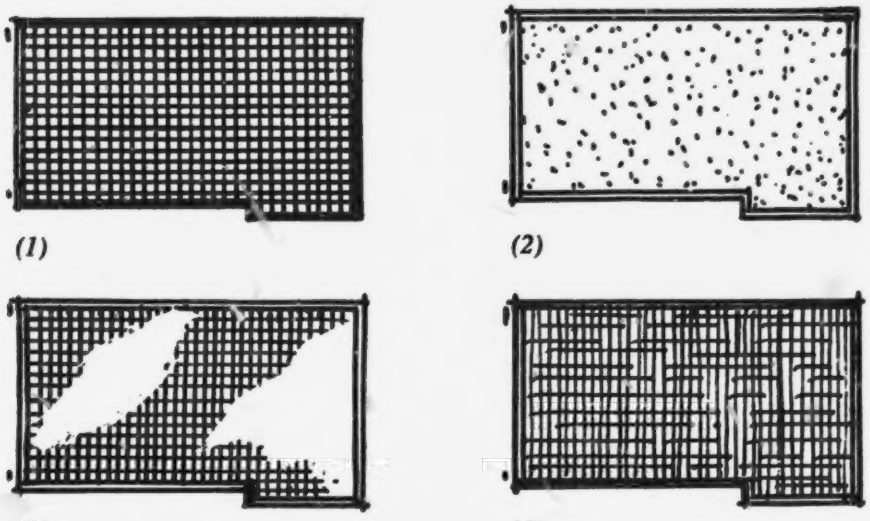


PLAN

ELEVATION


light
acoustical material
clamp
steel column frame
adjustable glides





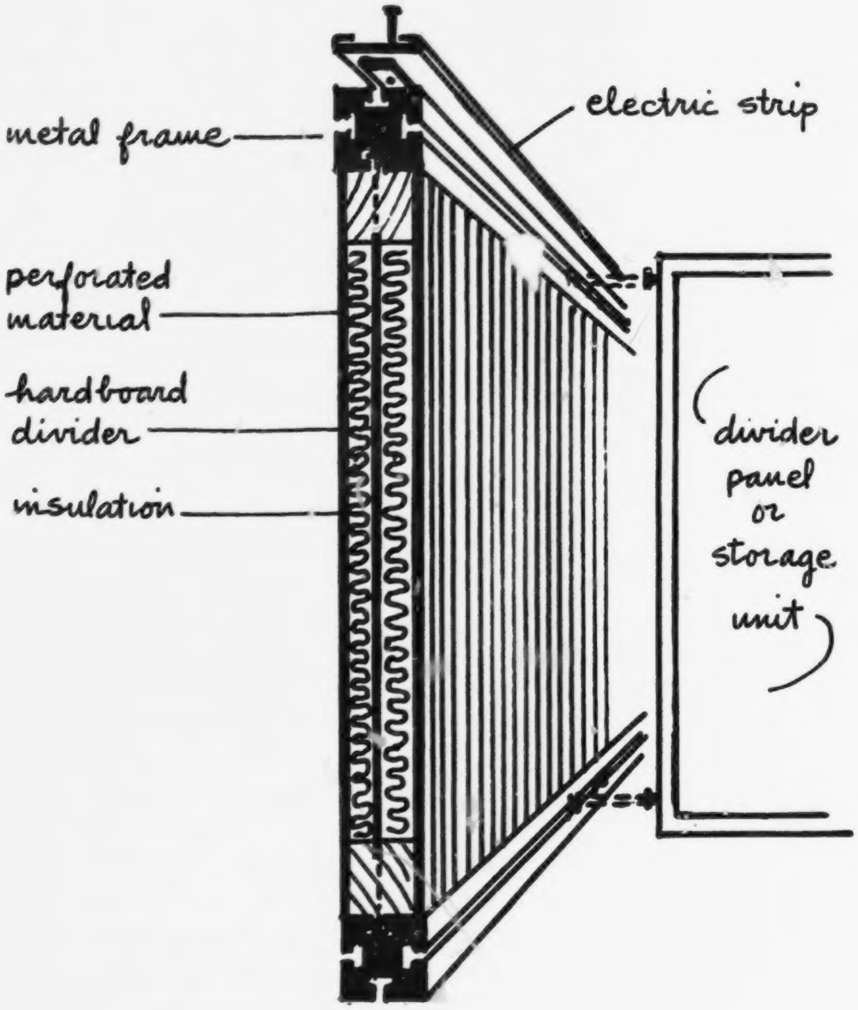
(1)

(2)

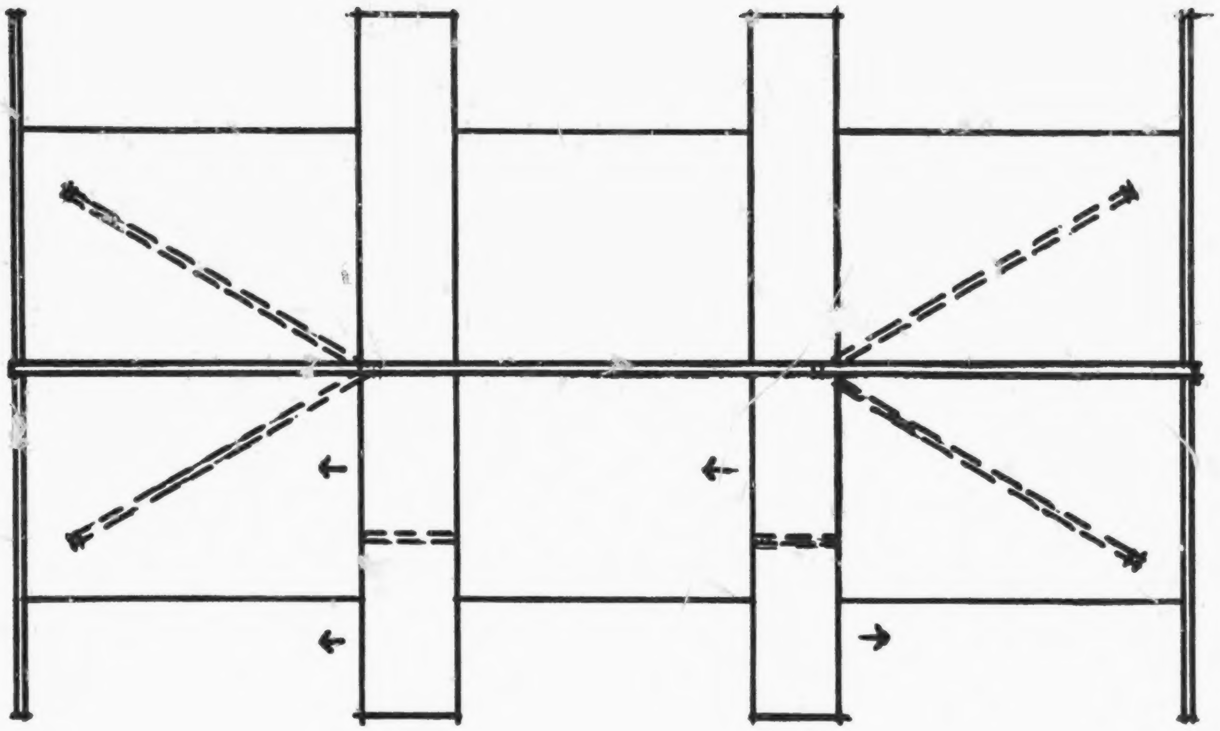
(3)

(4)

(above) Various panel divider materials: (1) perforated metal or pegboard with acoustical liner (2) cork with hardwood or metal frame (3) translucent plastic set in wood or metal frame (4) fabric covered fiberboard set in metal frame.


metal frame
electric strip
perforated material
hardboard divider
insulation
(divider panel or storage unit)

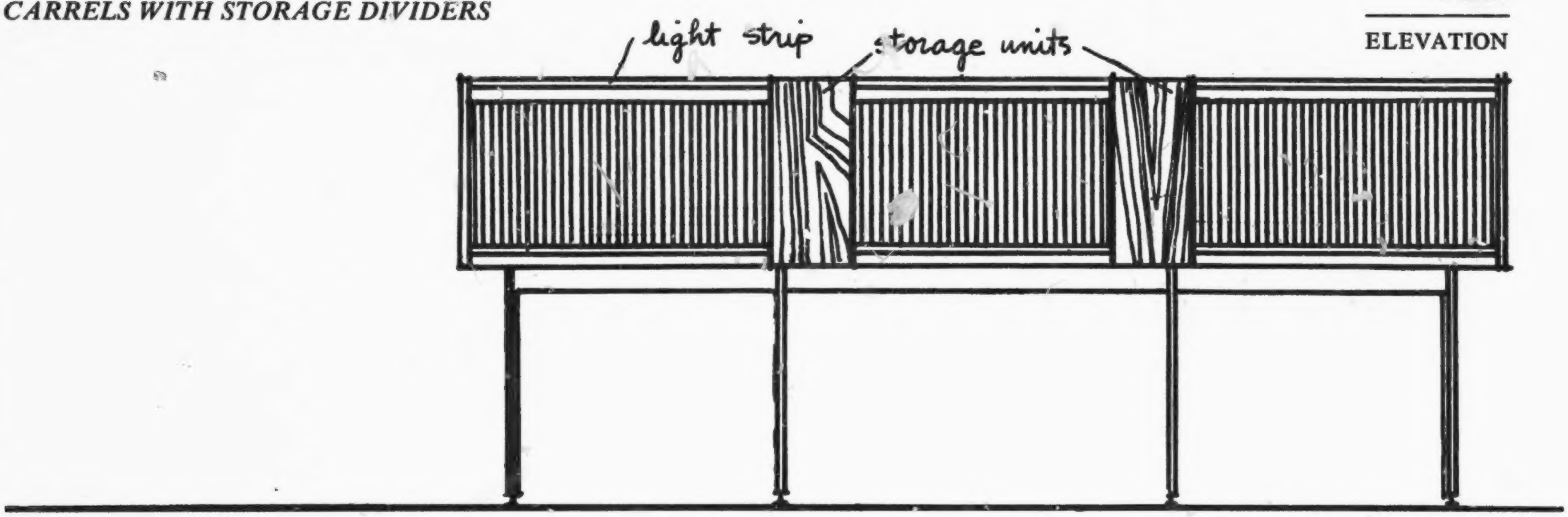
(right) Divider panel and center divider: side panels or storage units can be slid along tracks of center divider for flexibility of carrel size.

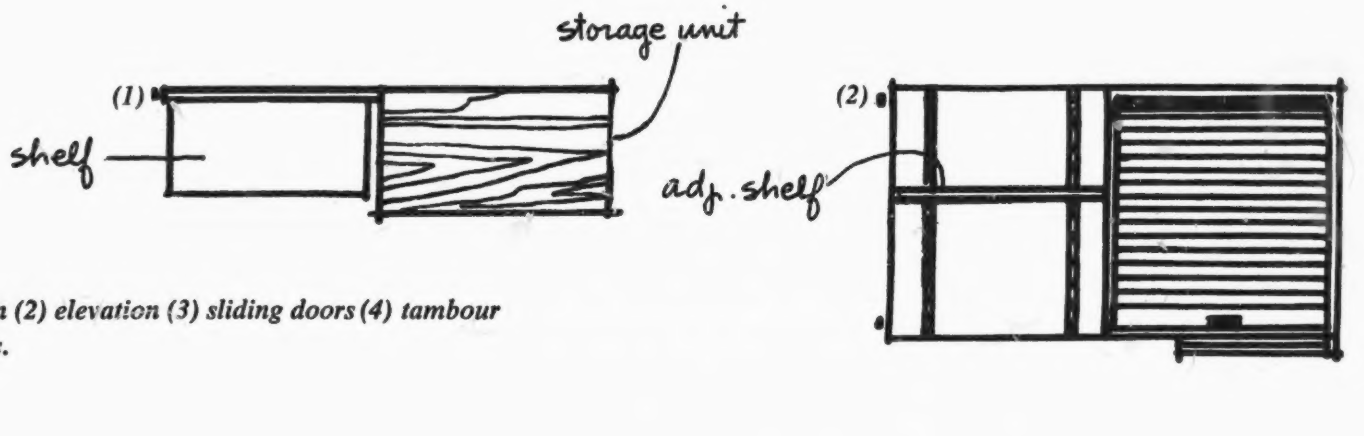


CARRELS WITH STORAGE DIVIDERS

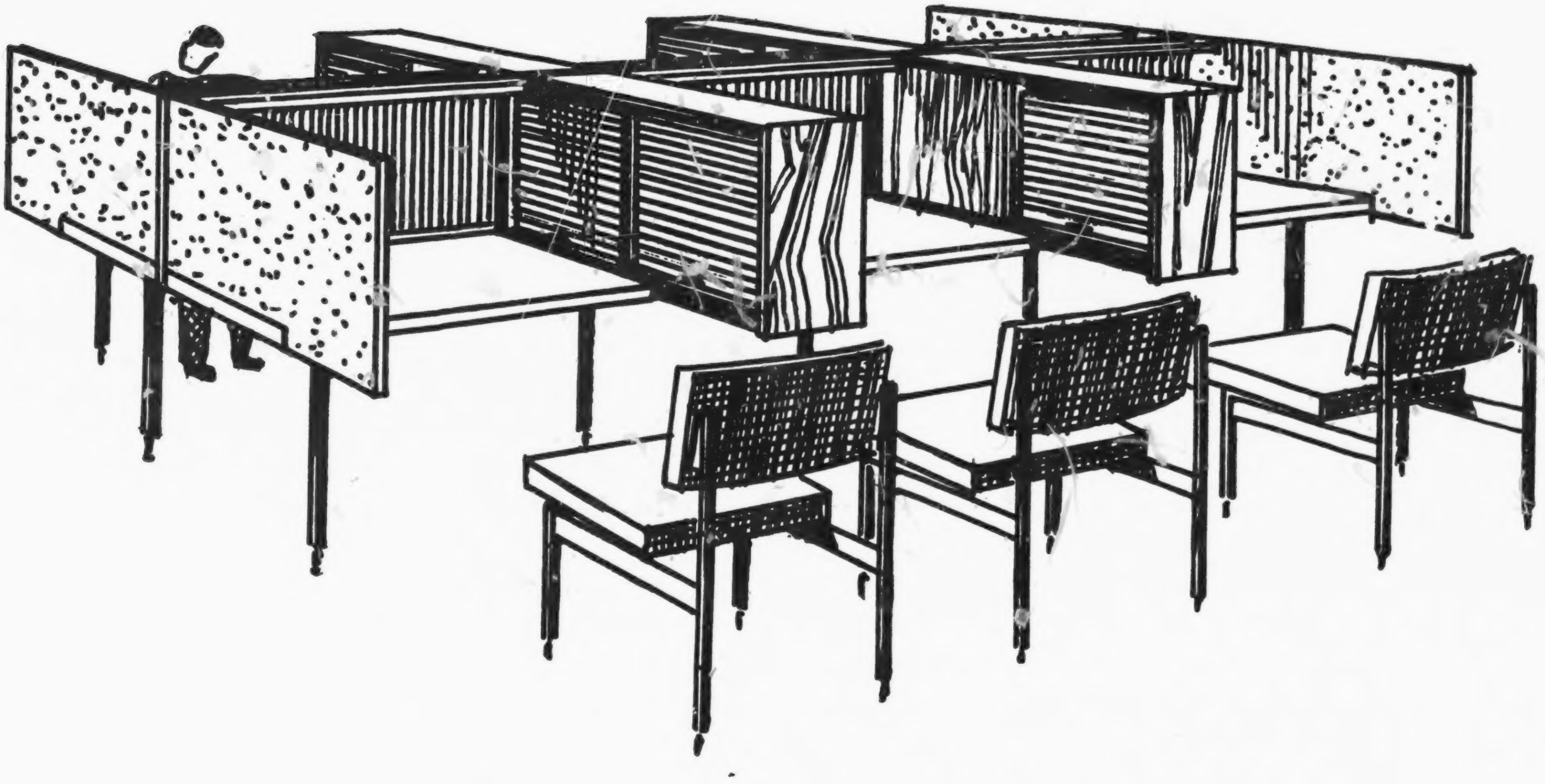
PLAN

ELEVATION

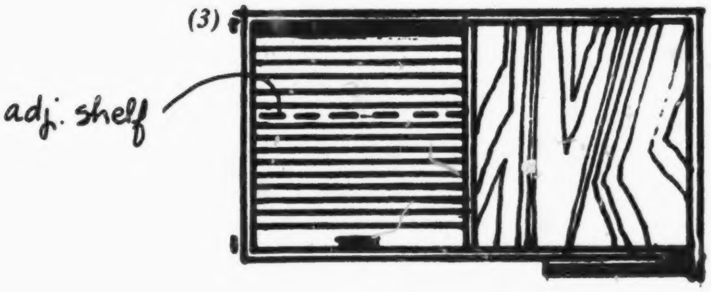

light strip
storage units


storage unit
(1)
shelf
(2)
adj. shelf

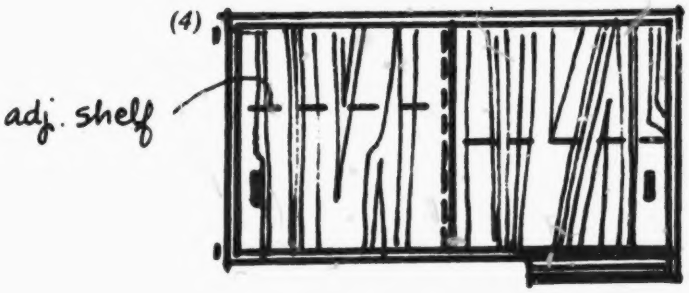
Various storage units: (1) plan (2) elevation (3) sliding doors (4) tambour door opening to opposite sides.



(3)

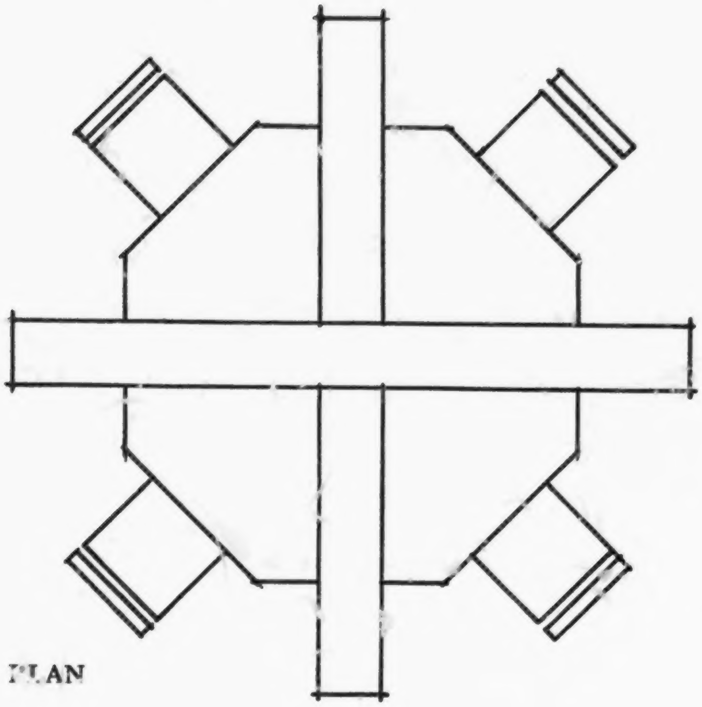


(4)

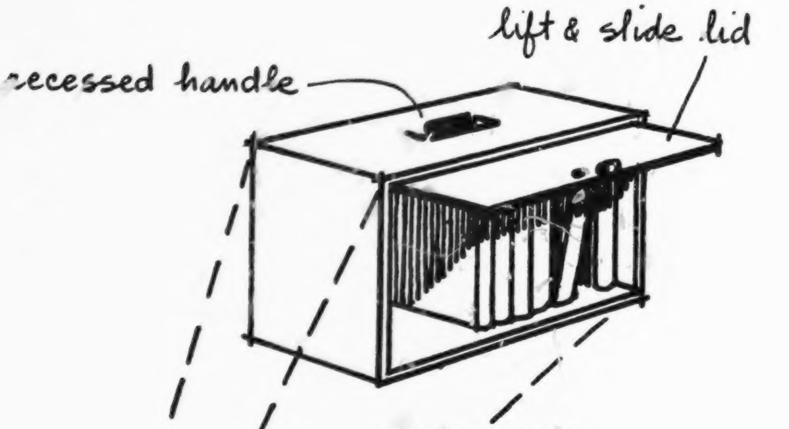


ARRANGEMENT OF CARRELS FOR 4 STUDENT PLACES

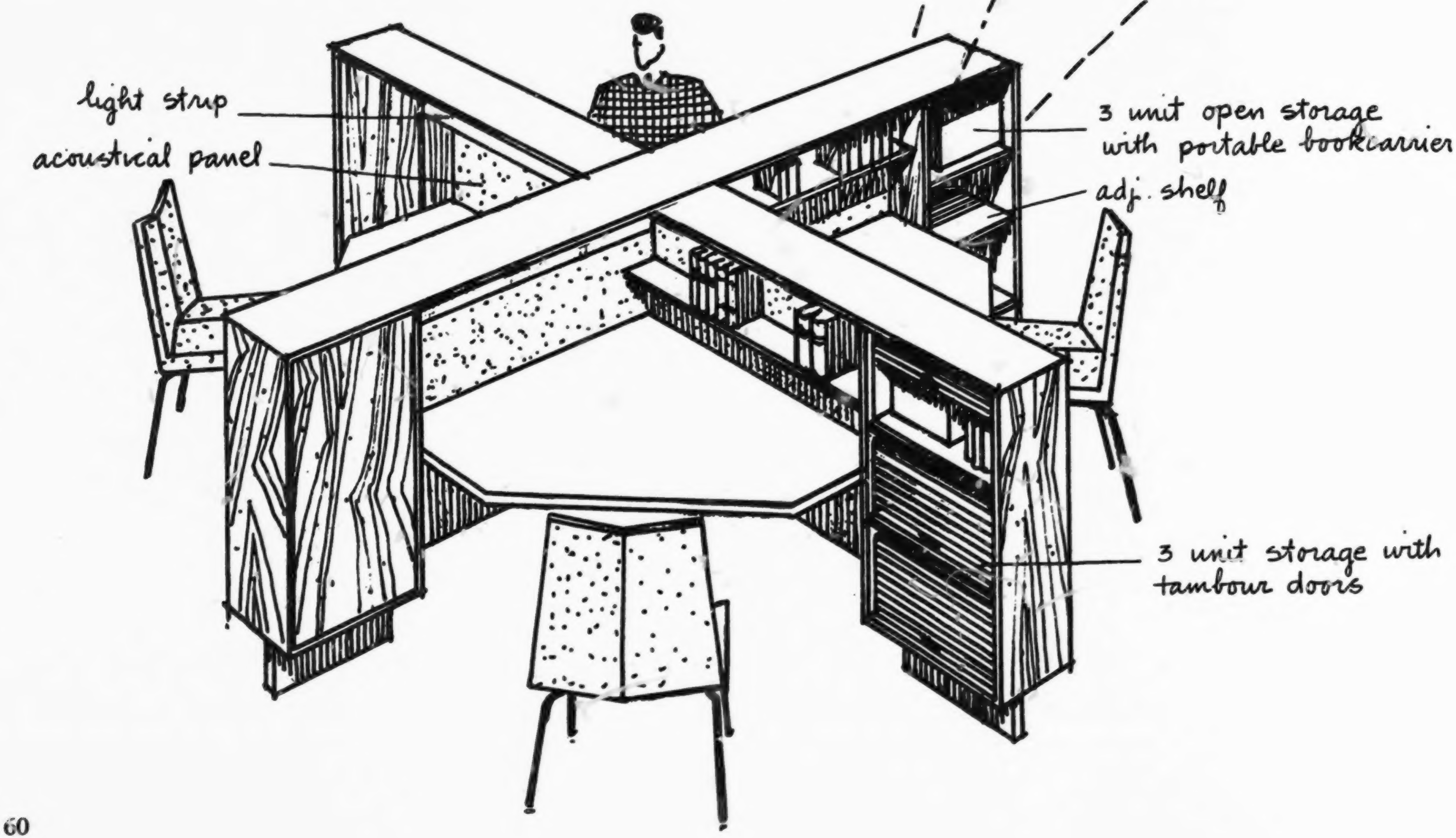
Base is an octagonal table; dividers are bookcases and storage units.

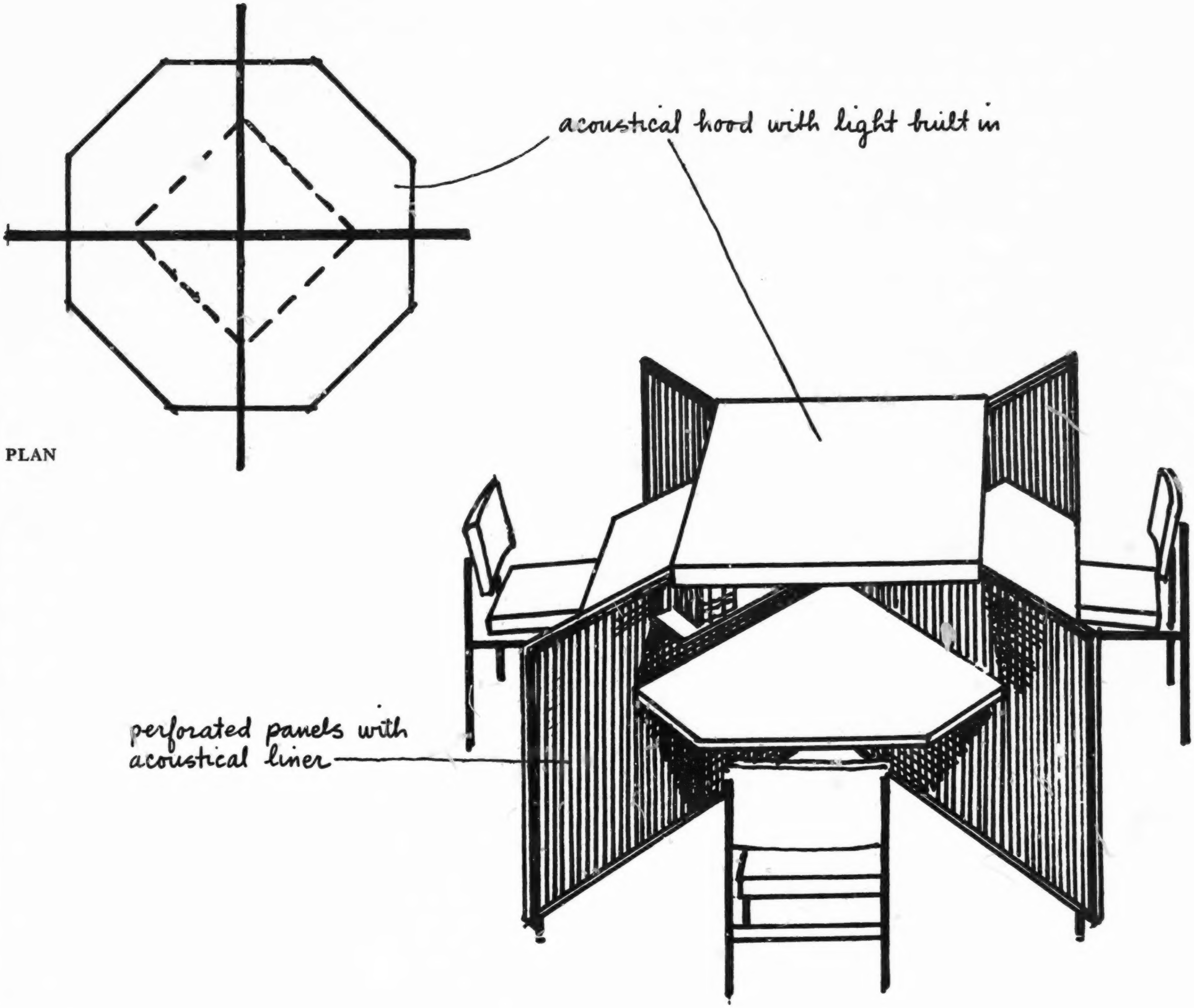


PLAN


recessed handle
lift & slide lid

BOOK CARRIER


light strip
acoustical panel
3 unit open storage with portable bookcarrier
adj. shelf
3 unit storage with tambour doors

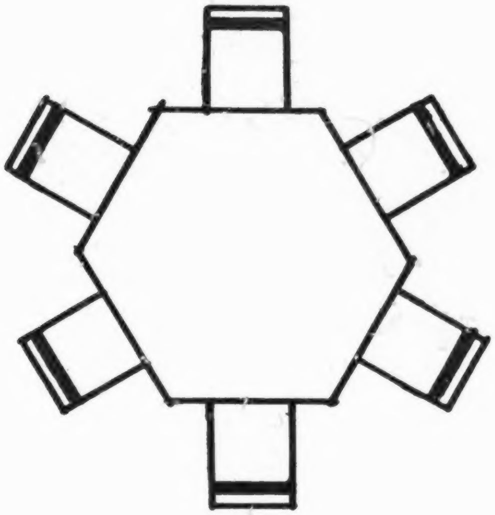

acoustical hood with light built in
perforated panels with acoustical liner

PLAN

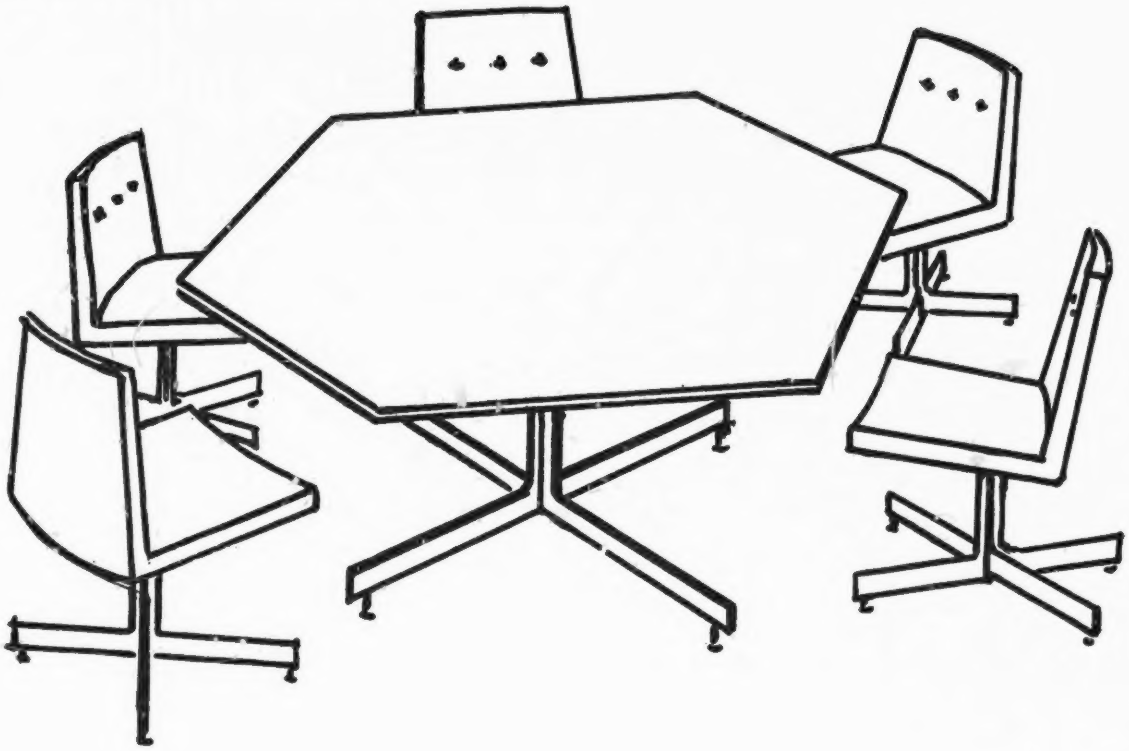
VARIATION OF OCTAGON-BASED CARREL, WITH LID OVER CARREL FOR LIGHT FIXTURE, AND SOUND CONTROL

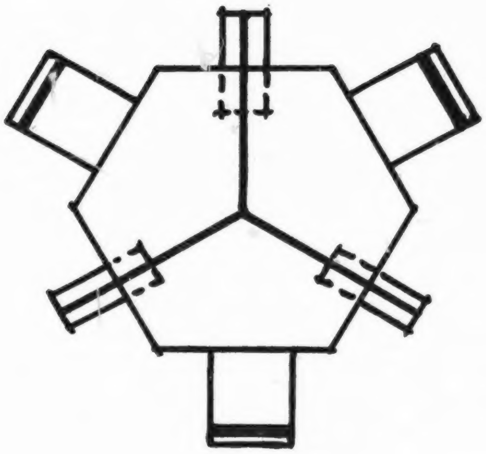
ARRANGEMENT OF CARRELS FOR 3 STUDENT PLACES

Base is a hexagonal table.

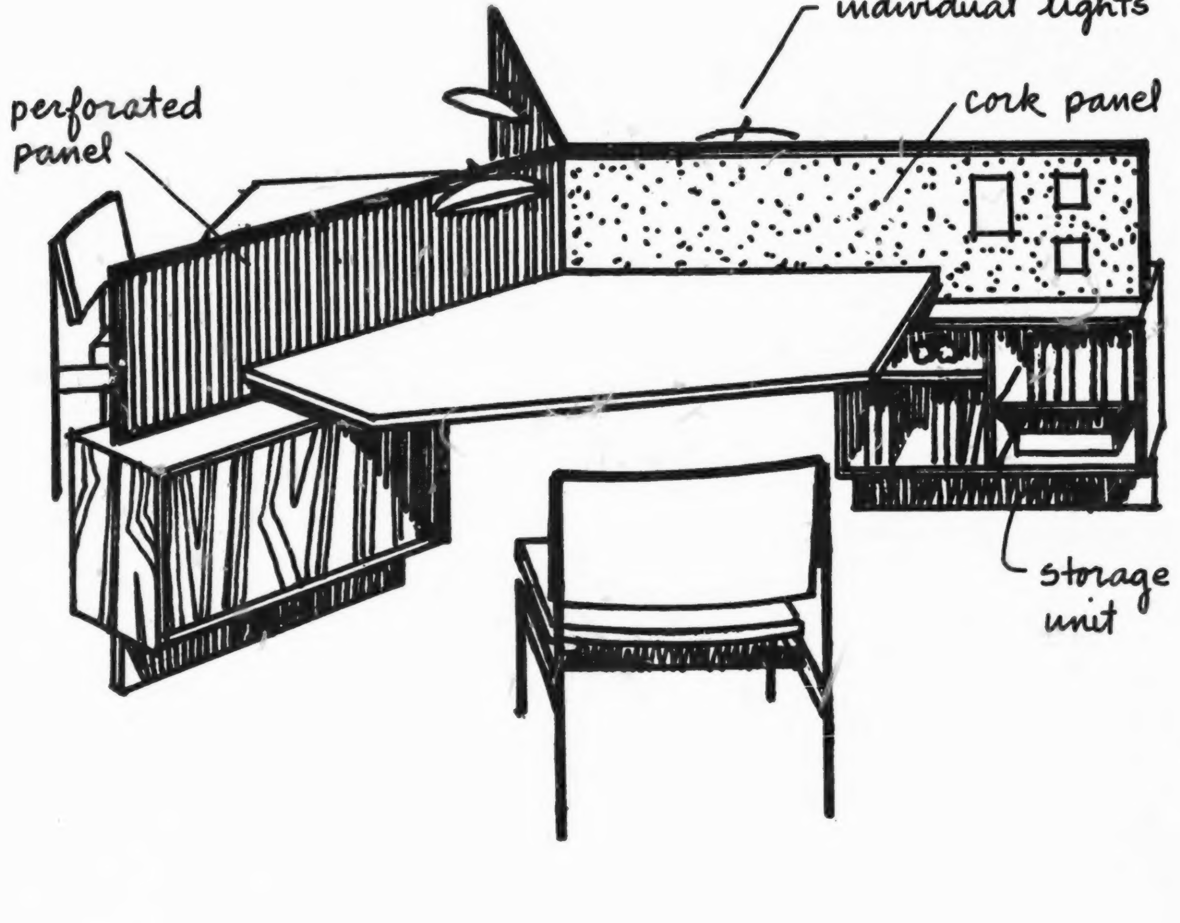


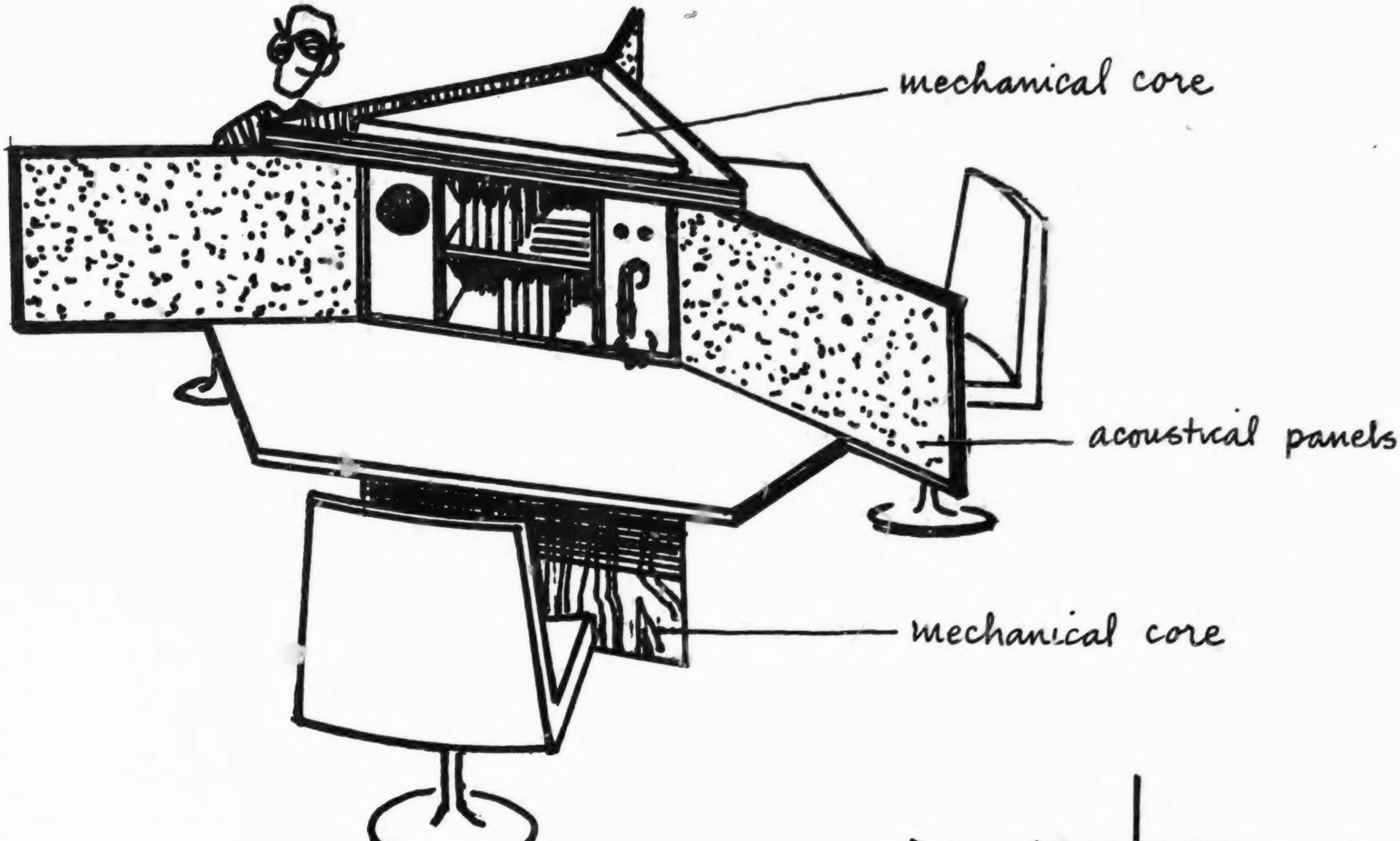
PLAN: CONFERENCE TABLE



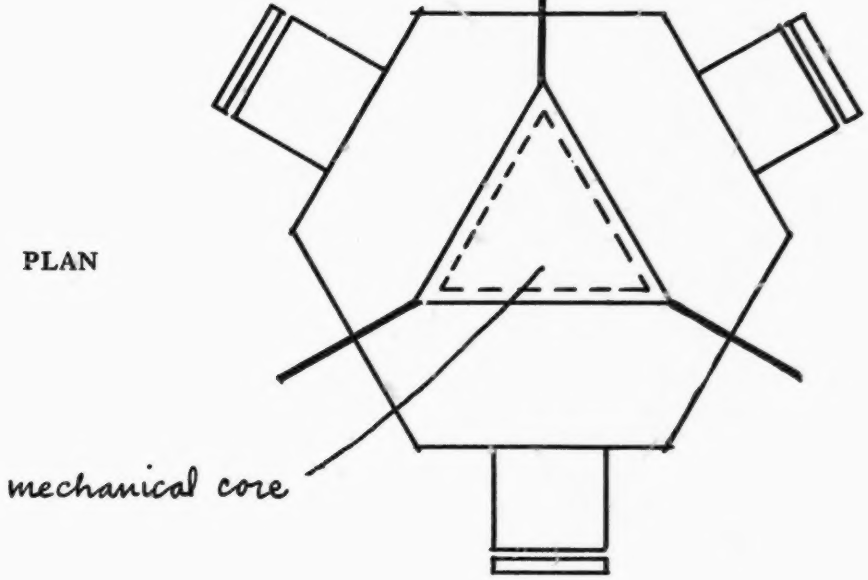


PLAN: STORAGE CARREL


individual lights
perforated panel
cork panel
storage unit

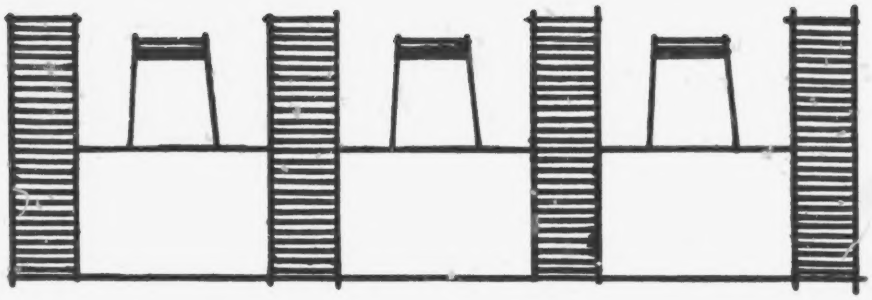

mechanical core
acoustical panels
mechanical core

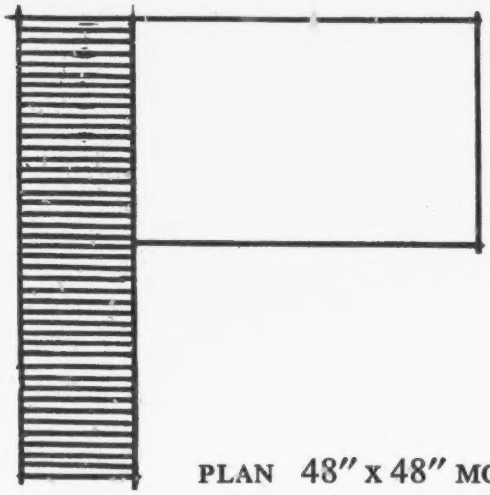
HEXAGON-BASED CARREL WITH MECHANICAL CORE


mechanical core

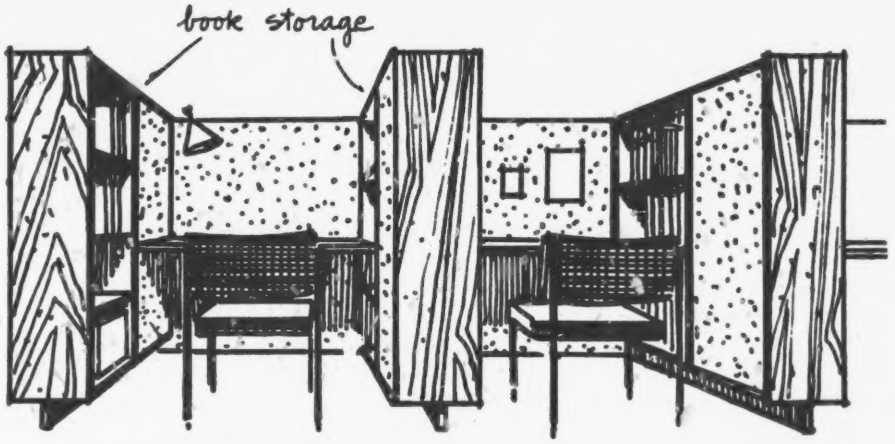
PLAN

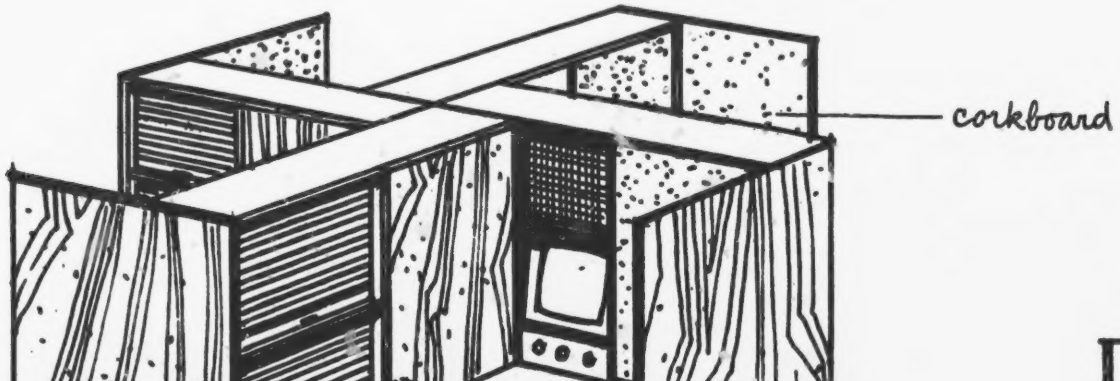
A variety of arrangements for making study carrels by using tables, bookcases, storage cabinets, and side or back panels. These units can be made simply, from the standard tables and bookcases that may already be available in a school, or from manufactured modular units intended for easy assembly in numerous arrangements.

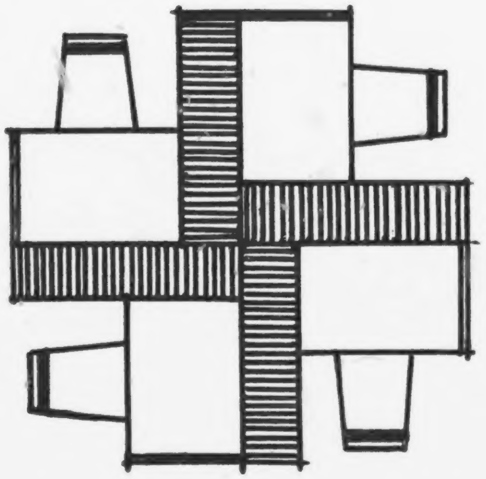


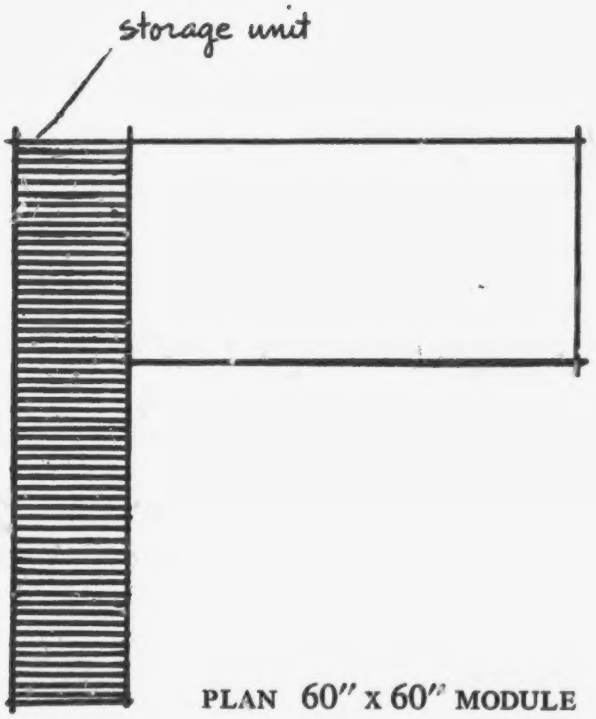


PLAN 48″ x 48″ MODULE

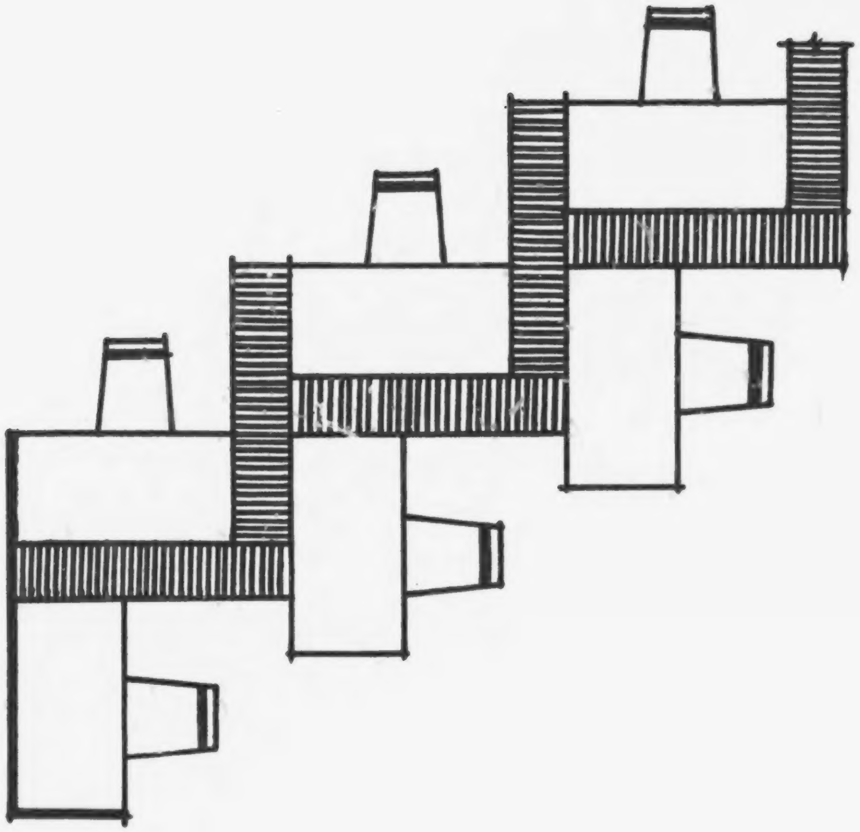


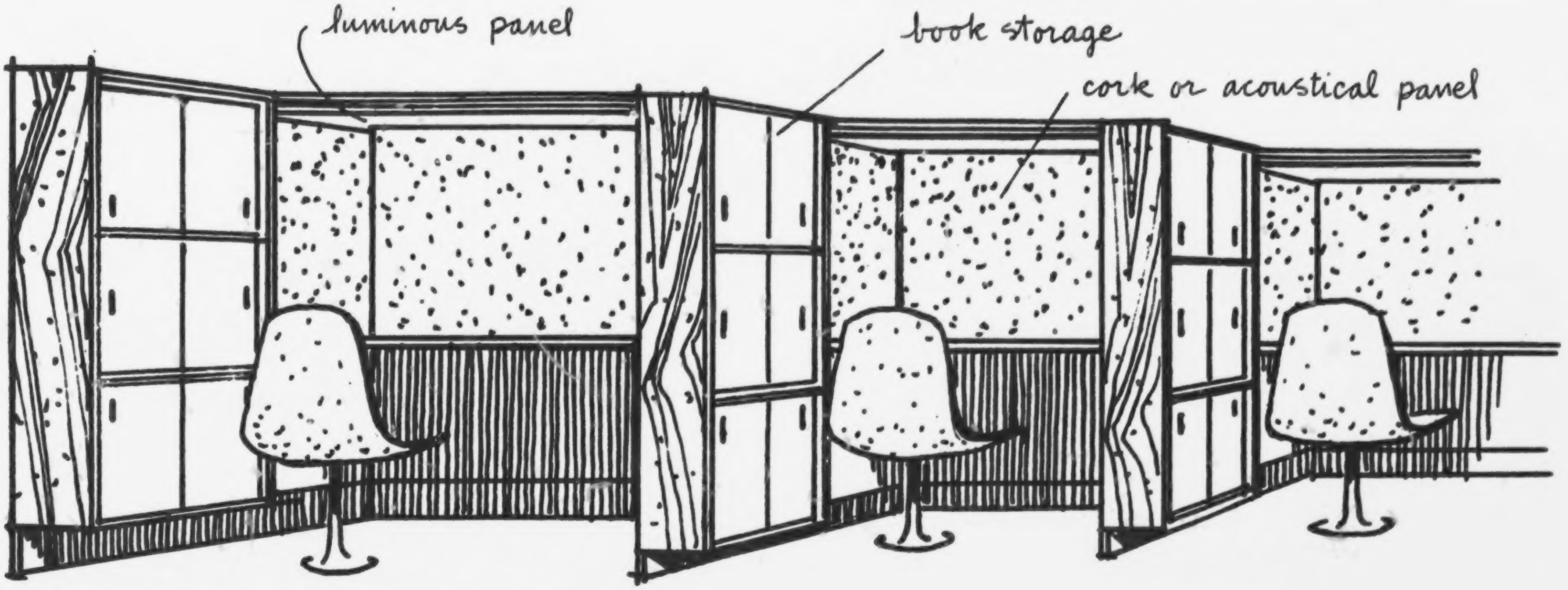




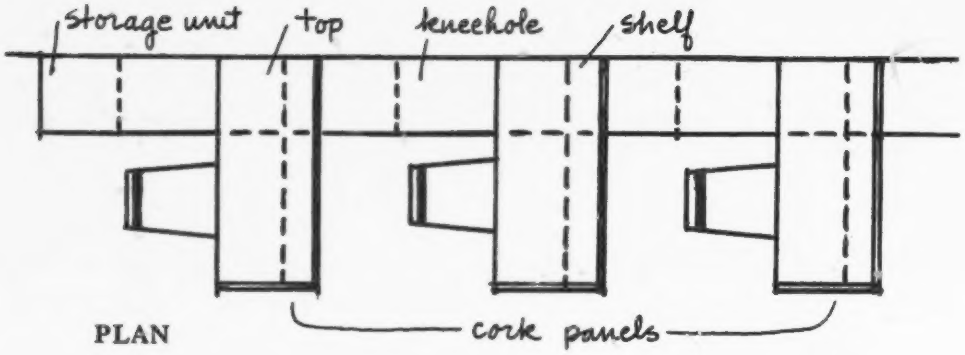

storage unit

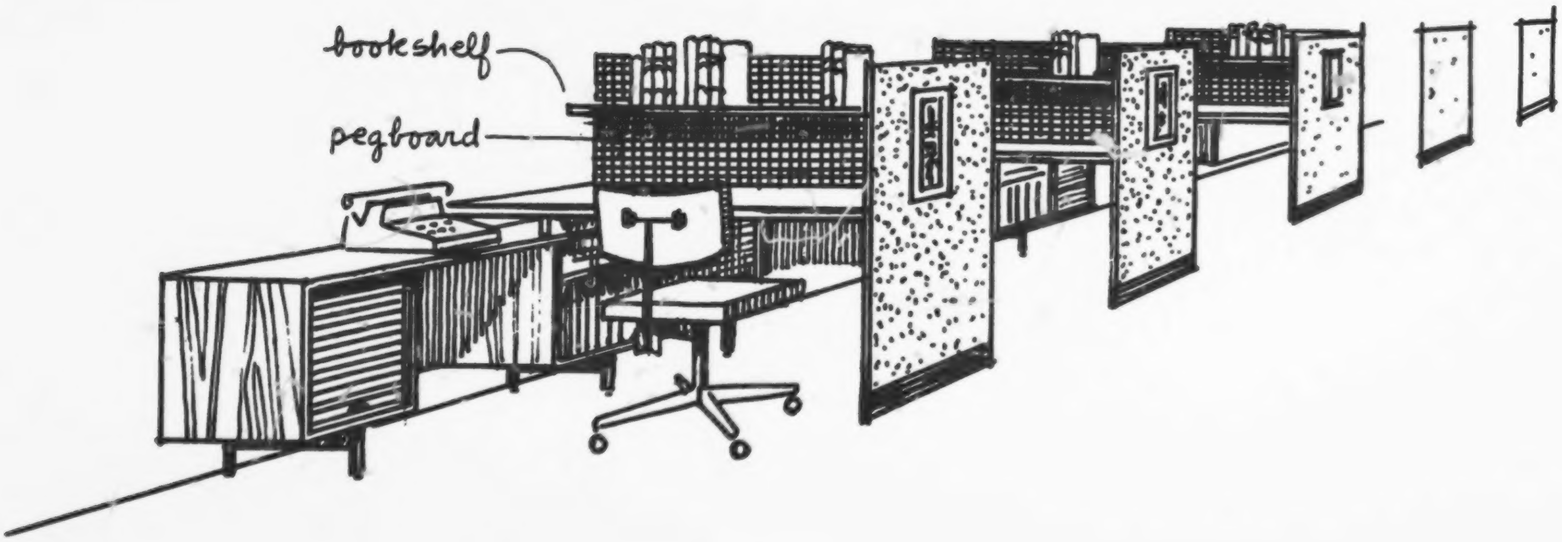
PLAN 60″ x 60″ MODULE



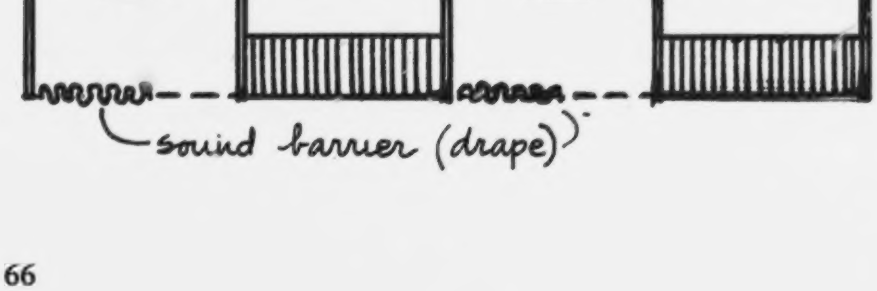

luminous panel
book storage
cork or acoustical panel

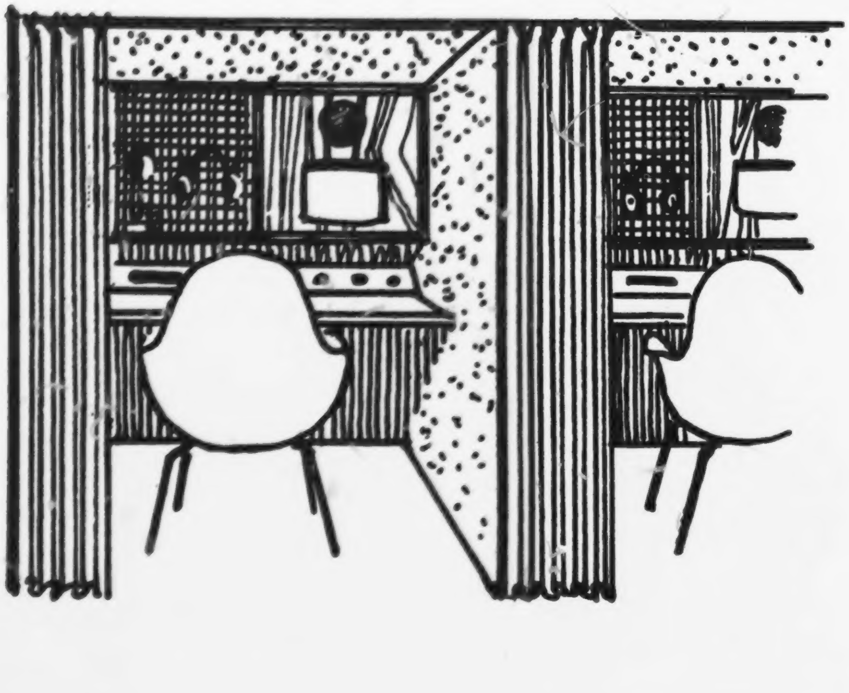
CARRELS WITH TYPING UNIT

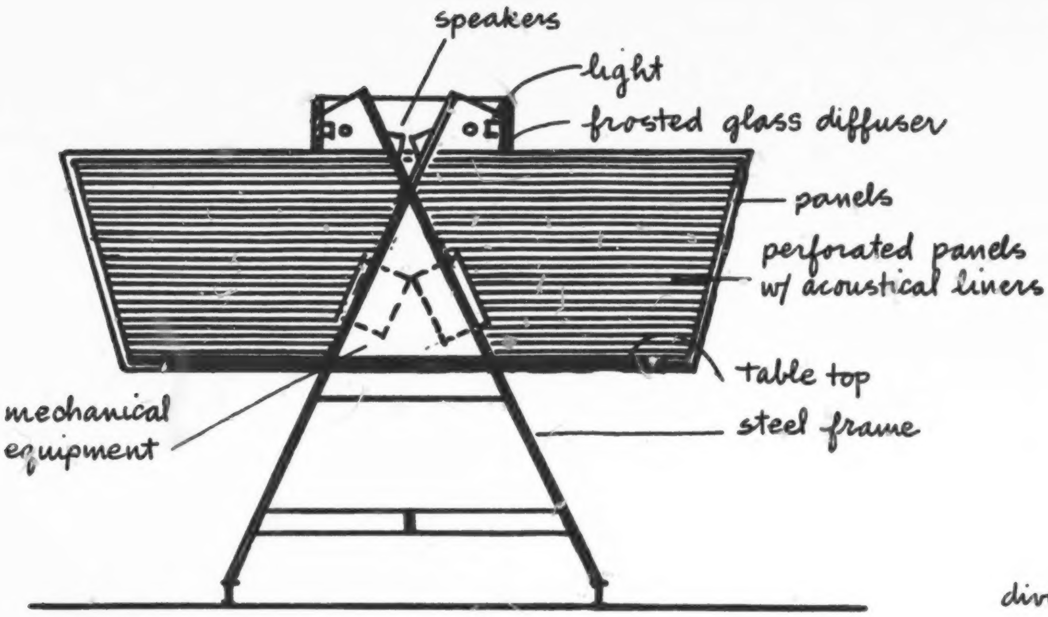

storage unit
top
kneehole
shelf
PLAN
cork panels


bookshelf
pegboard

CLOSED CARRELS FOR SOUND & VISUAL EQUIPMENT

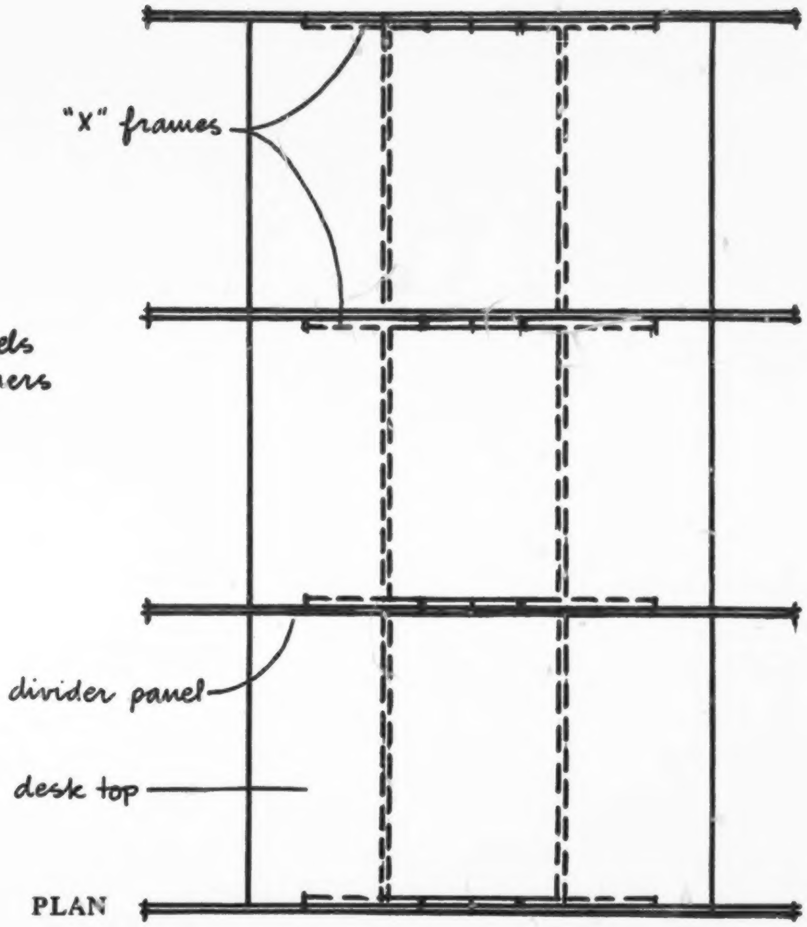

teaching equipment
sound barrier (drape)



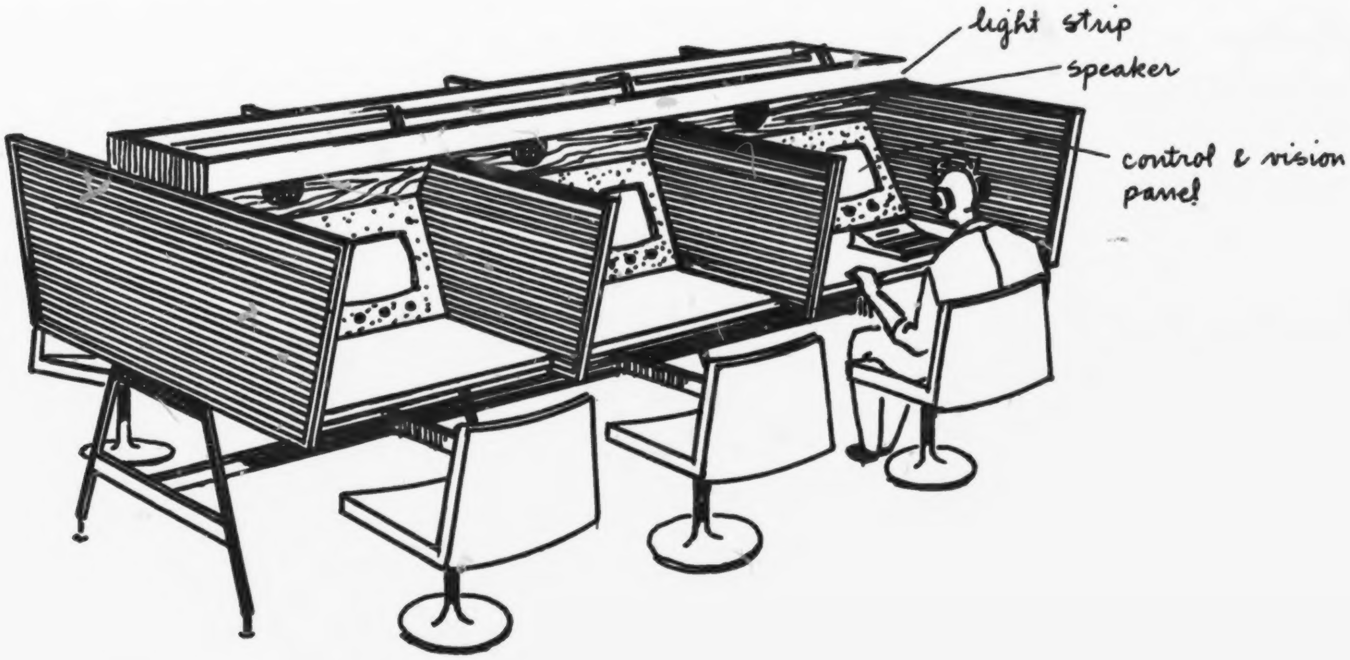

speakers
light
frosted glass diffuser
panels
perforated panels w/ acoustical liners
table top
mechanical equipment
steel frame

SECTION

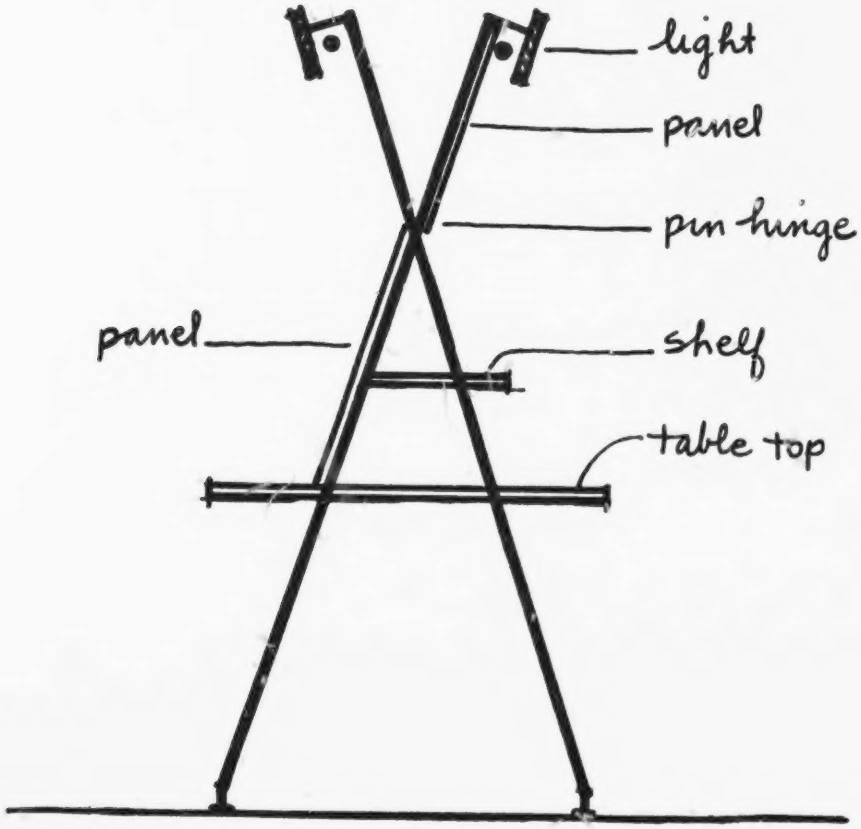
Carrels with mechanical equipment built-in, based on a steel or aluminum "X" frame. Frame folds up like a card table, can be used for other purposes as well.


"X" frames
divider panel
desk top

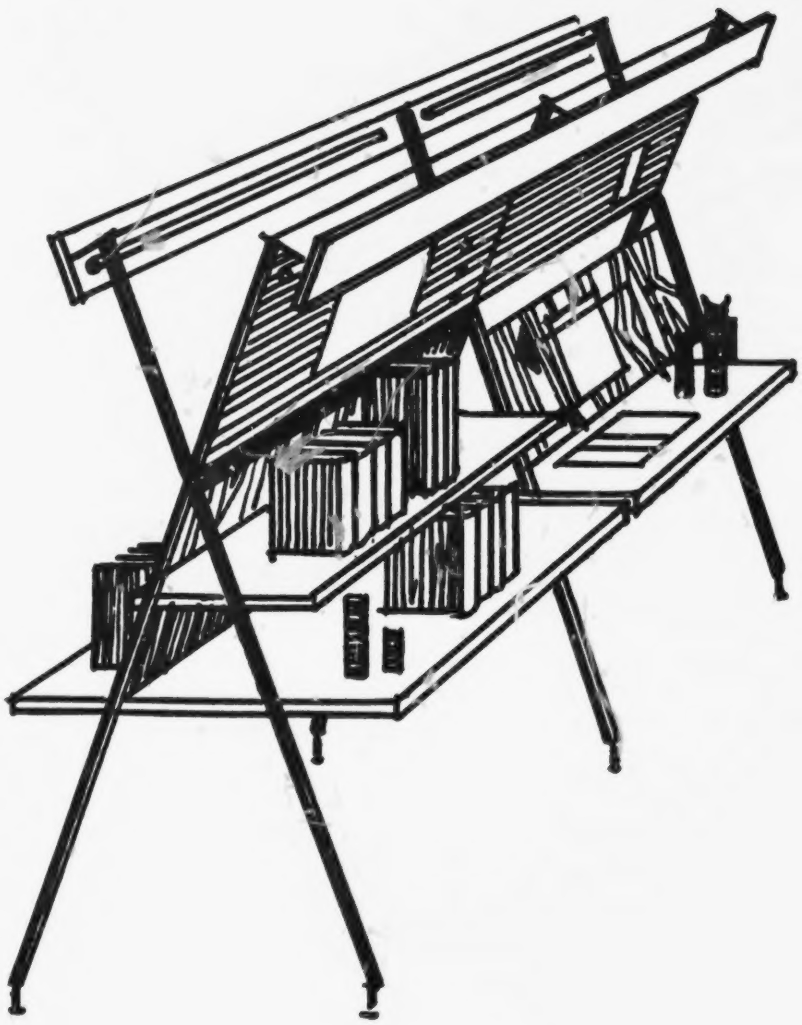
PLAN


light strip
speaker
control & vision panel

Basic "X" frame can also be used with shelves and vertical panels to make display or exhibit units.


light
panel
pin hinge
panel
shelf
table top

SECTION



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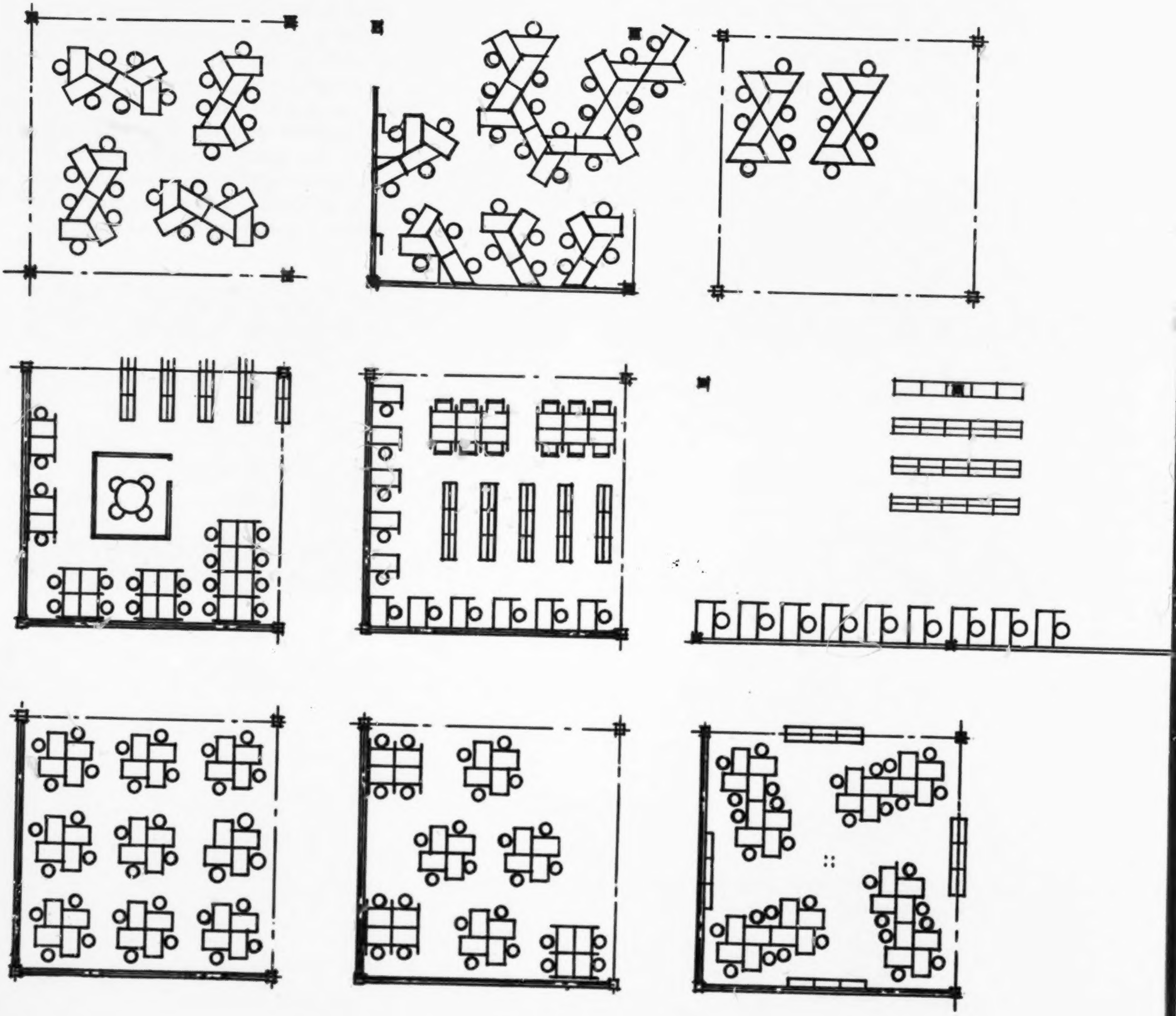
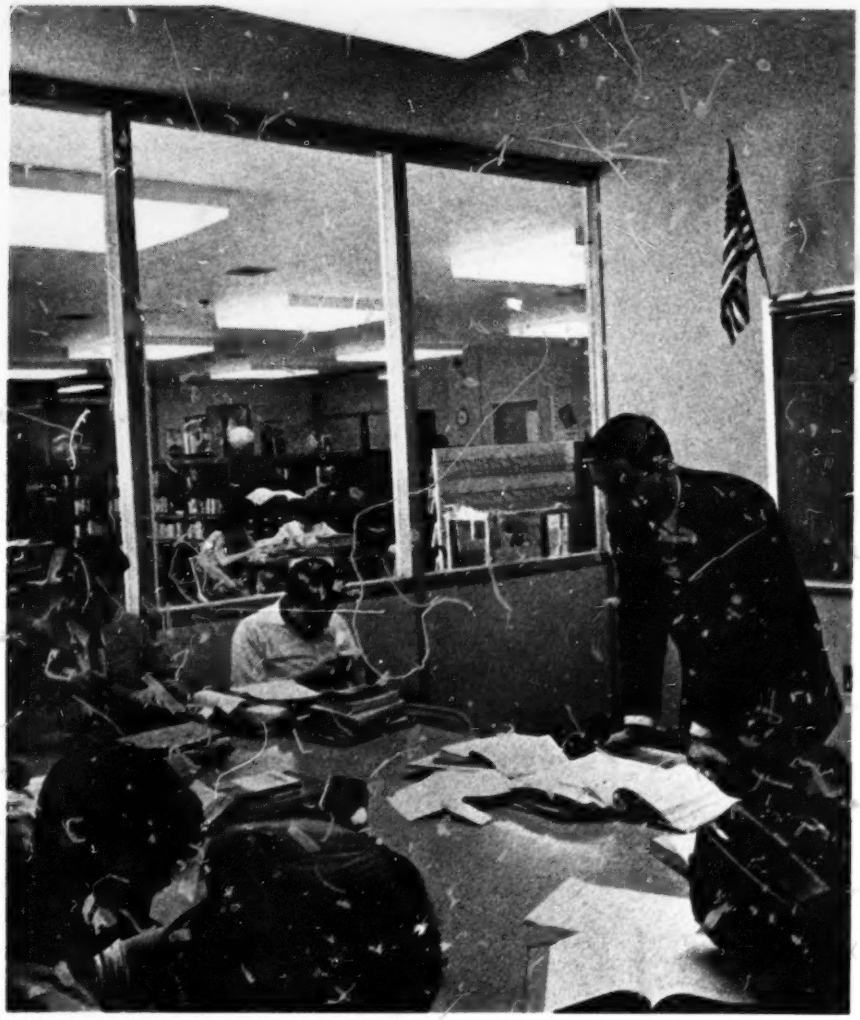
A VARIETY OF POSSIBLE CARREL ARRANGEMENTS





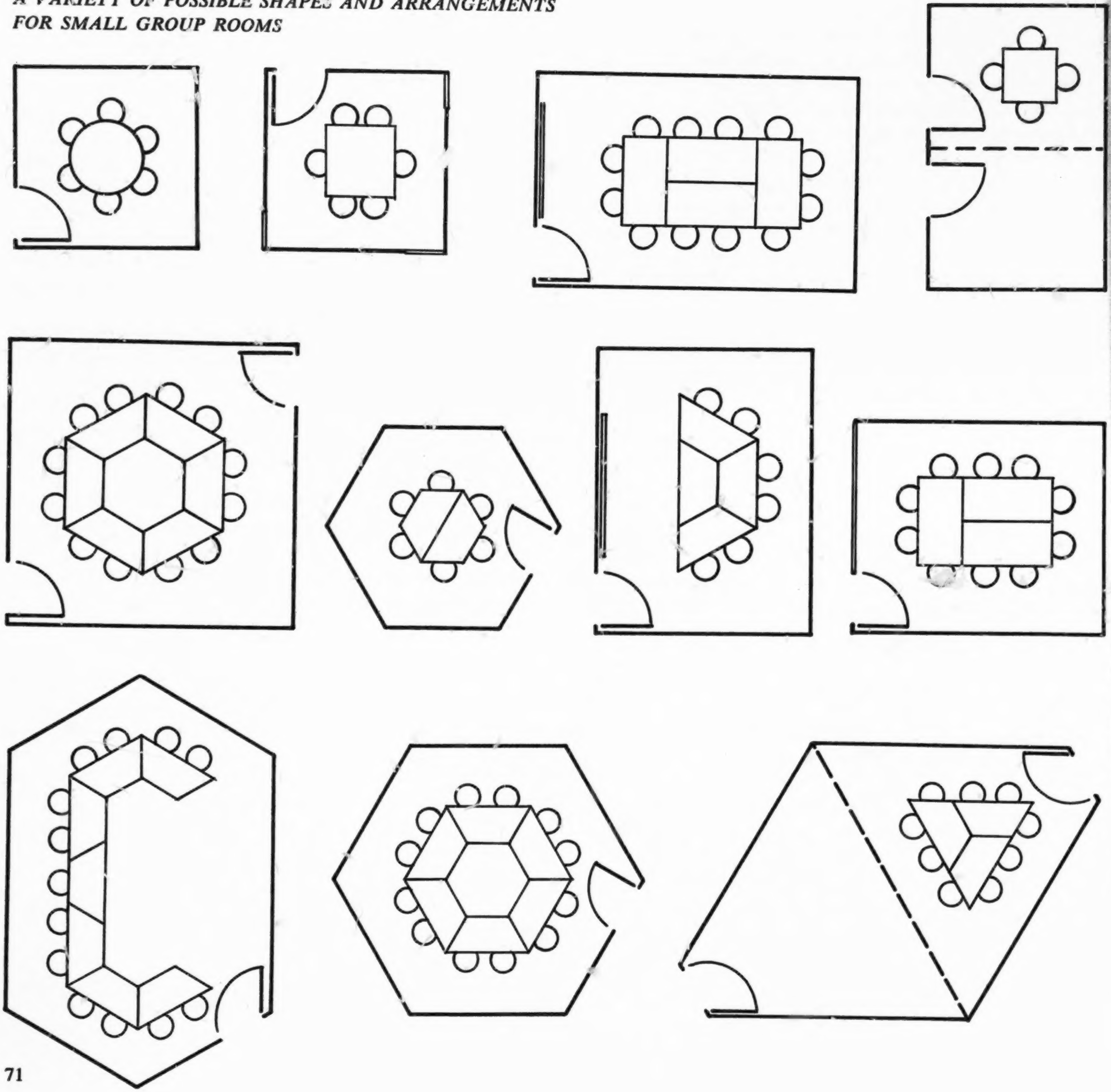
b. Rooms for Small Groups. Students need to do part of their work in small groups of two to four. They like to help one another, discuss ideas found in their reading, and work on group projects. Thus, sprinkled around and through the carrels there should be several small rooms approximately 10′ x 15′, with a table and a few chairs. These rooms should have at least one glass wall or window, or a window in the door, and be well ventilated.

Since they may also serve for the use of audio-visual equipment, especially in small libraries, they should be comparatively soundproof. Now that earphones are of such high quality it is no longer necessary to provide individual soundproofed listening booths even for stereo listening. Headphone listening to phonograph records and

(above, left) Small group room, Cold Spring Harbor H. S. library, used for committee projects, seminars, students who like working together.

(above, right) Adaptable for many activities, small group rooms can serve as audio-visual rooms too. Headphone listening here is from a master control console with outlets at tables.

A VARIETY OF POSSIBLE SHAPES AND ARRANGEMENTS FOR SMALL GROUP ROOMS



tapes can be done in a variety of ways—either from a master control console with outlets at tables or in rooms, or on a single unit basis in rooms or from sound trucks that can be wheeled around.

While these rooms can double for listening by small groups of four to six, there should also be at least one large classroom type of listening room and several other small projection rooms for reviewing slides, films, and tapes. Space for audio-visual displays should be provided. Wall panels for hanging pictures, and pedestals for pieces of sculpture should be available.

Many students like to use typewriters in the library. A series of some of these small soundproof rooms or a larger room with tables for several typewriters should be available. Calculating machines can be used here, too.

Teaching machines now available do not require anything more elaborate than a reading room carrel and an electric outlet.

It should be noted that if the small group study rooms are planned well in regard to soundproofing, they can serve a dual purpose. Not only will they keep sound from the recordings confined inside the room, but they will also, by providing a place where talking is encouraged, keep noise from developing in the reading areas.

c. *Tables and Chairs.* Now that some properly designed furniture for libraries has been available long enough so that its value is self-evident, it becomes apparent why school children have had so much trouble trying to settle down and study in our school libraries. Clearly, much of the old furniture was uncomfortable, poorly designed, and ill-suited to the needs of children. These days, however, tables with a variety of design, material, and color are available from all standard library furniture manufacturers. To select functional tables and arrange them well, watch for the following:

— Each reader should have at least a 2′ x 3′ space at a table.

— Avoid tables longer than 9 feet and avoid round tables except where you wish to encourage conversation.

— Table heights should vary: 28″, 29″, and 30″, but they should be intermingled so that small readers will not feel self-conscious about sitting at a lower table. Readers should be able to cross their legs when they are sitting at a table. This means that table skirts should be eliminated or kept very narrow, 3″ or less.

— Avoid table tops made of oak because its coarse graining is undesirable as a writing surface. Avoid formica too. It creates glare and has a cold, machine-like quality. Any close-grained wood such as maple or birch is preferable.

— Leave 5 feet of space between tables. (Refer back to the discussion on layout of reader facilities, page 51, for proper location of tables in relation to the keys and book collections.)

Since people differ in size, there should be several sizes of chairs available. In a library, just as in one's home, different types of seating are required for different purposes. At least three types should be available for library readers:

— Reading chairs for use at a table, some with and some without side arms. (Don't hesitate to use metal chairs, but be sure they are well designed.)

— An occasional type of chair for short periods of reading when notes are not being taken.

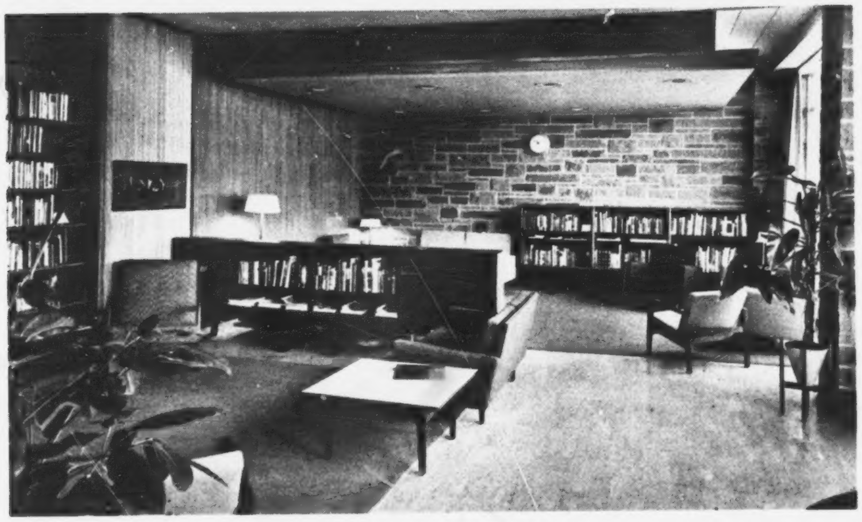
— A lounge chair for concentrated reading for long periods of time.

(above, right) Massachusetts Institute of Technology; (right) Living room arrangement, Carpenter Hall Library, Cornell University.

Rarely would an adult in his home think of sitting at the dining room table to read a current magazine or a novel. He would go to his lounge chair or lie down on a davenport. Why not admit that children have the same needs? Most people like to put their feet on something higher than the floor when they read. Why not provide hassocks? Or, if the floors are carpeted, let students sit on the floor.

A last word about the facilities for accommodation of readers: People differ widely in the kind of atmosphere or mood they like in a library. The extremes of tomblike silence or rumpus room roar are liked by few. College students these days insist on silence when they work, and separate rooms in which to talk and drink coffee, or visit and smoke when they take a break. Most people seem to like a low hum of activity to cover up the unavoidable noises that would otherwise be distracting. Studies indicate that visual privacy is somewhat more important than acoustic privacy. In coeducational schools especially, the temptations to the eye are very great. Study carrels that lessen the force of distractions are appreciated.

All this—the facilities that are available and the atmosphere that prevails—is integrally tied up with the matter of supervision. We all know that in the traditional school library, student behavior has had to be supervised. This report recommends freedom of movement for students and unsupervised free access to materials. There should be no surprise in this as it is implicit in all that has already been said. Nevertheless it may shock the many librarians accustomed to working in a traditional library atmosphere. Our view is that the problem of student comportment can be solved in the schools just as it has been solved at the college level, by a new kind of library setting and a new



approach to student responsibility and learning. Since World War II many college and university librarians have seen severe problems of conduct in the library disappear overnight, following the opening of a new library building designed in the spirit this report advocates. The same change of attitude will take place in the school library if the right conditions exist. If the study hall philosophy of library use is discarded, if the student finds it easy and convenient to go to the kind of space or facility that matches his needs, and if the library is administered in such a way as to win his pride and respect, behavior problems as such will fade. The student will conduct himself in the library in a manner that is helpful to himself and at the same time respectful of the rights of other readers whose needs at the moment may differ from his.

But all the factors mentioned here are essential. Halfway measures will not do.

Part C. The Library Collections

Size. It is difficult to say how many books a school library should have because other community libraries have to be taken into consideration and because the type of school and nature of its program are involved. Because most schools have not been especially concerned with the matter in the past, few have ever developed libraries extensive enough for students to do any kind of serious independent work.

One way of approaching the problem is this: start with the assumption that there should be enough books available so that teachers can assemble the amount of material they will need, and so that the best students can find enough material to enable them to gain a reasonable mastery of their school subjects. Add to this the quantity of materials related to special problems students may wish to pursue on their own initiative.

At the college level, a library of at least 125,000 volumes is required. For a secondary school, assuming that no other usable libraries exist in the community, a school library of 50,000 volumes would seem basic. However, if there is a strong, usable public library that is conveniently located, or a nearby college library with which it is possible to work out a cooperative arrangement, a school library can do its job with 30,000 volumes. And if the school is earnest in its conviction regarding varied carriers of information, and thus plans to store a substantial quantity of film, tapes, records, and the like, then the number of volumes can be somewhat reduced. The minimum of 30,000 holdings can be met by a combination of book and non-book titles.

Few, if any, school libraries approach this size today. Few schools are prepared to think in these terms. These are optimum levels nonetheless, and it would be foolish to temper reasonable recommendations because they are far in advance of current practice.

There is often a correlation made between size of enrollment and the number of books a school library should have. This has two facets: first, the number of *book titles* a library should have, and second, the number of *copies* of each title. As to the first, the individual student needs access to a wide range of books and other materials to answer his questions, no matter how many other students are in his school. Thus, in terms of the number of titles available, the size of the enrollment is irrelevant. But not entirely, since in the larger schools the number of problems that will be assigned will be greater than in the small schools. It is also likely that teachers in the larger schools may have had more advanced training in their subject backgrounds than their colleagues in the smaller schools, and they will be apt, therefore, to assign more complex problems. There are exceptions to this, of course, and especially so among the private preparatory schools.

There is, however, a direct relationship between the size of the enrollment and the number of copies of titles the library should have. At the college level, when calculating the number of copies that will be needed on reserve, the rough formula of 15 students per copy is sometimes used, with a certain amount of variation.

Two special factors should be considered most carefully: first, the availability and suitability of pocket books the students might be able to purchase for their course work; second, the *ability* of the public library in the community to meet the needs of the school. Both are local matters. The public librarian usually will be able and willing to work out methods with the schools of making known to students the contents of the public library. There is nothing a librarian likes better than to be able to boast about the heavy use his library receives.

Unless there is a good bookstore near the school, there is little reason why the school library should not sell paperback books as part of its regular service. Local habits and traditions will determine whether the library can both lend and sell books without incurring too great a loss from theft. If it cannot, it may be necessary to keep the pocket

Paperbacks, popular among students—and inexpensive—can be merchandised as attractively as in a supermarket.

books behind a counter. This would be unfortunate, but would be better than having no pocket books at all. Perhaps a local news agency would be willing to handle the pocket book sales on a consignment basis. The point is that students should have a chance to buy good paperbacks, and experience in dozens of schools, public and private, shows that they will do so if given an opportunity.

It should be remembered that the interests of young people today are immeasurably broader than were the interests of the present generation of adults. This, no doubt, is due to events that are affecting the lives of all peoples on our planet. The task of learning how to prepare oneself for adulthood, as well as for going to college, is much more complex than it was 25 years ago.

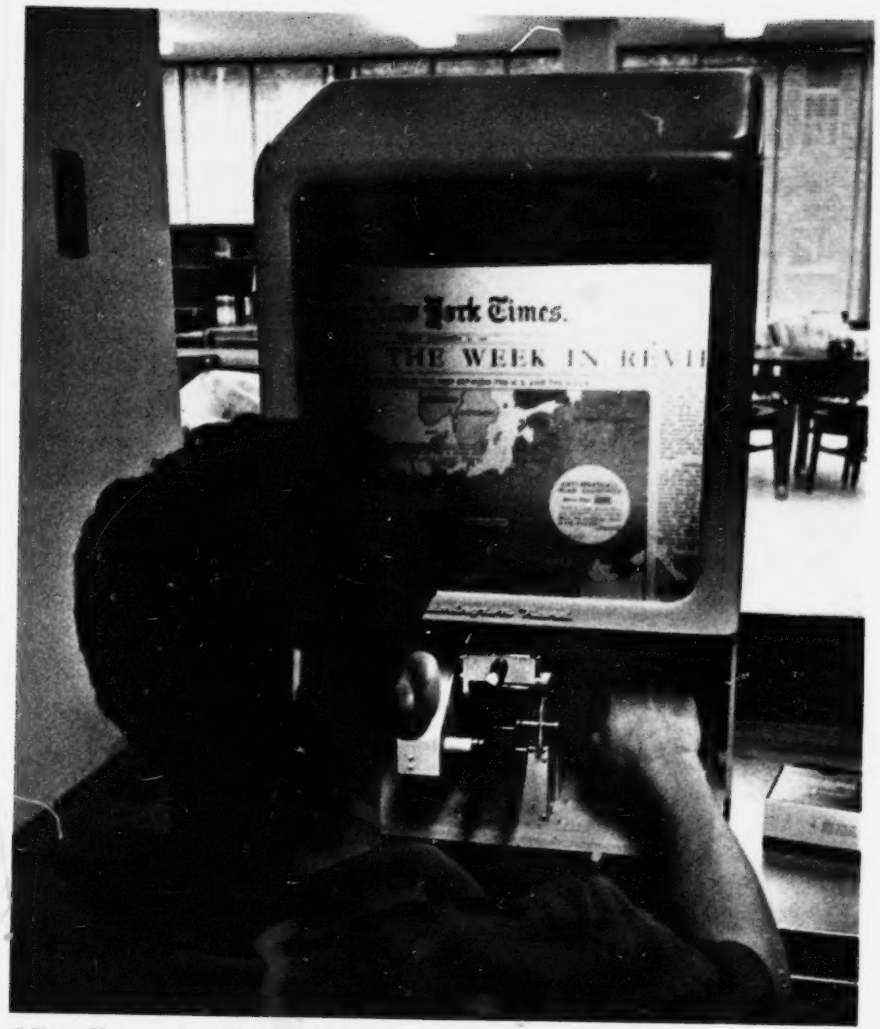
The nature of many problems facing young people is different, too. Many of the assumptions about democracy and government, about our country's relations to other countries, about the white race in relation to other races, about the role of the family, as well as others that could be taken for granted by the present generation of adults when they were in school, have to be re-examined by high school graduates today. They cannot avoid this and they cannot postpone the examination until they get to college. Many young people, in spite of college enrollment statistics, don't get there. This is a process that has to be started in the secondary school, and a strong library of source material is essential to help students do it.

It should be clear to all Americans by now that all that is implied in the American Dream as well as in the basic hopes of the Founding Fathers stands a good chance of losing out to an authoritarian concept of government unless we increase our understanding of government and unless we recognize the need for rapid development of forms of international organization. It is clear that the eighteenth and nineteenth century concept of the amount of learning required for maintenance of the country's welfare is not meeting the needs of the second half of the twentieth century.

If the school's role is to indoctrinate, few books are needed. If its role is to teach, that is, to help students make up their own minds about the basic assumptions of their culture after having examined and analyzed the relevant facts, an extensive library is required. It is not enough to offer students books that are programed to give the answers. They need to learn questions as well as answers. They need to gain experience in working from source material. They need, too, to learn how to draw sound conclusions from raw evidence. And they also need to learn that there are some questions to which there are no answers.

A school library that can supply these needs will receive one or more local, one regional, and at least four national papers, including *The New York Times, The Christian Science Monitor*, the *St. Louis Post-Dispatch*, and *The Washington Post*. It should receive at least one foreign paper such as *The Times* (London) and one foreign language paper in French, German, Russian, and Spanish. Back files of these papers need not be kept beyond six months, though the library should keep microfilm copies of *The New York Times*.

There should be at least 10 to 15 important general magazines such as *The Atlantic Monthly, Harper's, The Reporter, Foreign Affairs, The Economist* (London), the *Saturday Review*, and a selec-



Microfilm reader, University of Chicago Laboratory H. S.

tion of current publications of the United States Government, United Nations, and UNESCO, with selected publications from other countries where the future of mankind is being decided—China, Germany, Britain, France, Russia, the African States, the Far East, and all of the Latin American countries. Similarly, the library should subscribe to as many specialized magazines as are needed to provide material for student reports and papers. Most of these will be indexed in the *Readers Guide to Periodical Literature*.

Such a library is not easy to develop. It will require the skill of a well-educated and well-trained library staff and a corps of teachers whose knowledge of subject matter is extensive.

The problem of the community's fear of propaganda and indoctrination is a very real one and should be faced because it will directly involve the school library. First, the administrator should be able to show from available courses of study, just how the teachers go about the teaching—not indoctrination—of controversial issues. Second, the library must be able to show that for each issue that is being taught, it has assembled materials that reflect all sides and all facts and that it offers a balanced diet of information. Particular care must be exercised with motion pictures and other audiovisual materials because many of these are produced by organizations that are not scholarly or objective. Unlike books, whose physical format permits easy comparison and evaluation, the motion picture is not easy for students to judge, unless they can detect biases and false information as the showing progresses. This is especially difficult because one of the great values of the motion picture is that it can appeal to the emotions of most people more directly than the printed word.

The school library will have to possess much material that is non-objective, biased, or at least the honest expression of one point of view. Labeling such materials is a dangerous practice. The only real assurance the school can provide the community lies in its ability to show that its program does a good job of teaching the issues in such a way that students have been exposed to all the relevant facts and points of view, and that the implications of our culture have been explored. This is not an easy task but unless it can be done, and done well, there is no reason for a system of universal public education. Authoritarian governments have ruled for thousands of years; democratic governments are a new idea—only a few hundred years old. They can exist only when the schools adequately prepare the citizens. The school library is the laboratory of evidence upon which the teachers draw for the materials they use in the training of minds.

At the time this report is written, schools in various parts of the country, especially the Far West and Southwest, are under severe attacks from right-wing extremists. They charge that books in the library authored by "liberals" will cause student readers to lose their faith in traditional American values and turn them to belief in some kind of socialism or even communism.[13] In other parts of the country, parents object to having in the library some of the new American novels, such as Salinger's *The Catcher in the Rye*, which use contemporary slang and profanity.

Meeting the problem of local censorship is outside the scope of this report. The American Library Association, which has played a heroic role in defense of freedom of access to information, will supply helpful guidance and information to anyone interested.

There are, incidentally, many places to which schools can turn for help in supplementing their own library collections and school librarians will know about these resources: the local public library; the county or regional library in some parts of the country; the state library which frequently maintains a travelling library service for schools; the state department of education; the state historical society for local history materials; and special libraries in some large cities. Most of these will be pleased to help schools try to provide good library service, though none of them should be used as an excuse for avoiding proper local financial support.

Space and Furniture for the Book Collections. One square foot of floor space will house 15 volumes. Thus, for an ultimate collection of 30,000 volumes, 2,000 square feet of floor space should be allotted.

In figuring the book capacity of a bookshelf, plan for shelves that are no more than one-third full when the library is new. This will provide enough room for the book collection to double in size and still leave one-third of the shelf space open. At no time should shelves be more than two-thirds full, as completely full shelves are hard on books and expensive to administer.

a. Book Stacks.

— For books and other materials, freestanding, bracket book stacks should be used because the bracket type is more adaptable than other types of shelving. For example, locker boxes, coat racks, carrel tables, and other kinds of equipment can be hung on bracket stack uprights. Select from standard library manufacturers as a means of guaranteeing high quality and low main-

(right) Outside library services will supplement the school's book collection. Here, bookmobile unit maintained by county library brings books to Waverly, Ohio, H. S. library (Library is a building addition to school at right.)

(far right) Equipment storage room, West Leyden H. S. Note portable machines housed on open shelves; cabinets for filmstrips, flat pictures, other materials; preview room in background.

tenance costs. Book stacks come in 3′ unit lengths, plus 2″ for end panels for each range. The stack ranges, when they are arranged in blocks, should ordinarily not be longer than 15 feet.

- Rows of ranges should be spaced 4′ 6″ apart, measuring from column centers. In a school library, use only 5 or 6 shelves per section.
- Ninety per cent of the shelves should be 8″ wide and 10 per cent should be 10″ wide. Special cases for atlases are desirable. Folios can be laid on their sides in a double-faced section, using both sides as a double shelf. This is one reason for avoiding cheap shelving that uses crossbars for bracing.
- Leave five feet between the face of a book stack and the edges of adjacent tables.
- Group rows of book stacks in blocks and avoid interspersing single rows of book stacks with tables. Do not make people walk between adjacent tables to get at bookshelves; rather, make them walk through and by book stacks to get at reading facilities, as discussed in the section on layout of reader furniture.
- Rows of book stacks that cannot be lighted from regular ceiling fixtures are best lighted from regular single tube stack light fixtures (consult the stack manufacturer). All fluorescent tubes should be shielded by baffles or glass or plastic lenses. (See Lighting, Chapter 6 of this report.)

b. Types of Shelving. Any of the following variety will be functional.

- Steel bracket, freestanding cases.
- Sliding shelf, freestanding cases.
- Wood cases using metal strips and clips for supporting shelves.
- Sloping wood or metal shelves designed especially for periodicals.
- Stack boxes or lockers that can be attached to stack columns. Some manufacturers also make reading tables that can be attached to stack columns.

These are all available from such companies as Ames, Art Metal, Estey, General Fireproofing, Globe-Wernicke, Hamilton, Remington Rand, Sjostrom, and from local shops.

c. Audio-Visual Equipment, Materials, and Storage. In a well-balanced library the number of films, tapes, records, and other non-book materials will proliferate. They may run into the thousands. Those to be used with portable machines, as well as the portable equipment itself, can be stored in the equipment storage room on ordinary wood shelving, in bins, or in specially designed steel cabinets.

While some materials such as phonograph records can be kept on open shelves in the book stacks for direct access by students, most of them will have to be handled in the same manner as restricted printed materials. This is not due to a "Thou Shalt Not Touch" approach, but because the nature of the media at this time requires this kind of organization. Film, for example, must be cleaned and inspected before it is re-used.

If there is an automatic retrieval system, the bulk of the record, tape, and film collection may be stored in the control room.

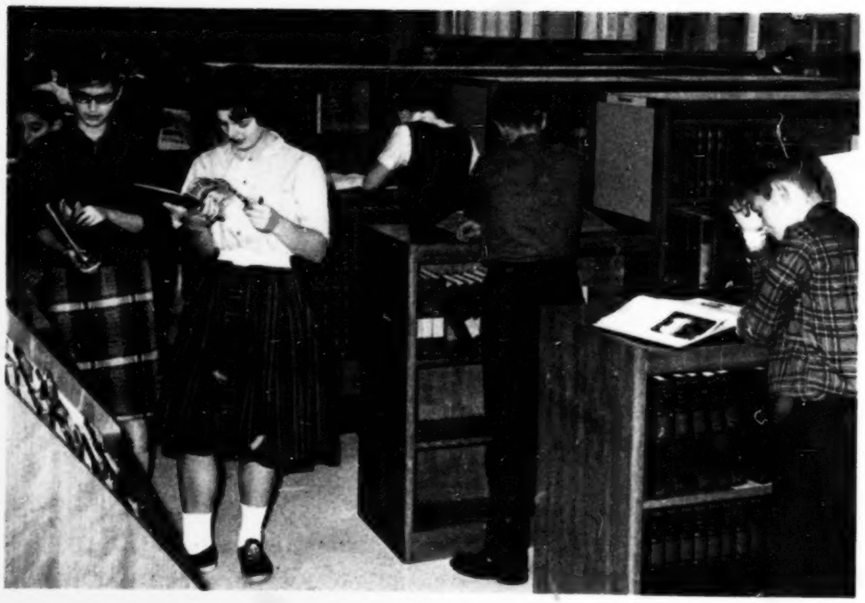
The electronic equipment field is a restless one, full of rapid change, but the stable types of portable audio-visual machines that belong in a library are these:

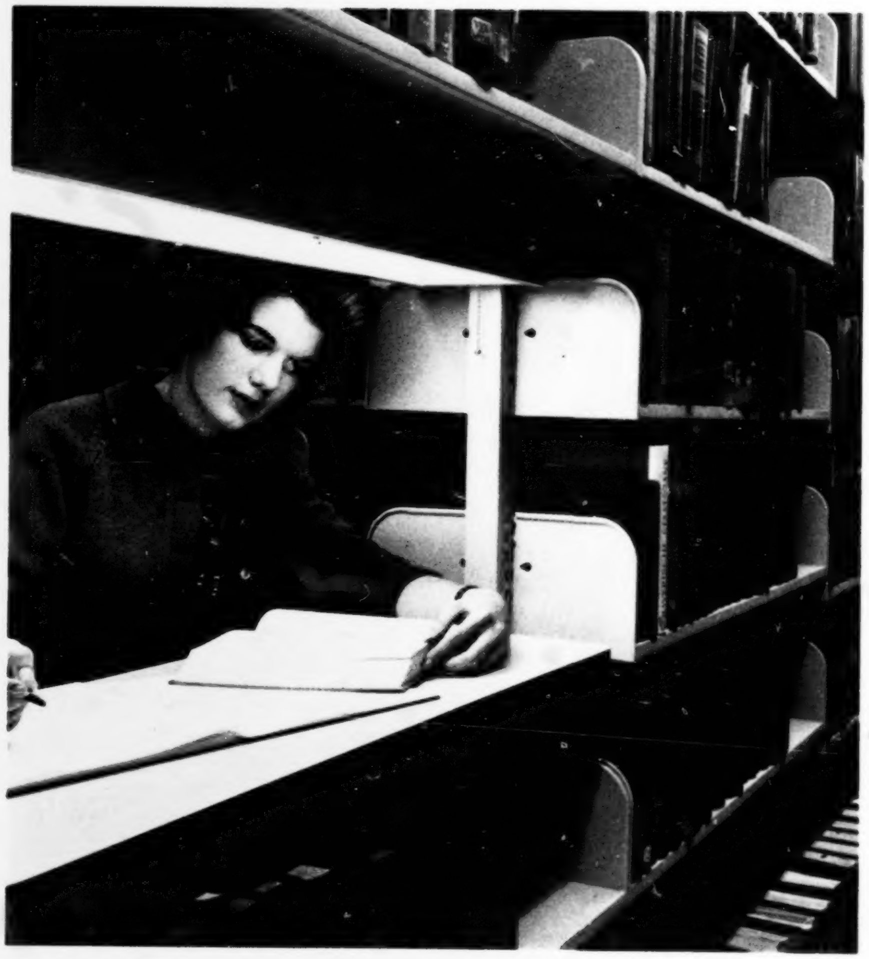
Pike County
FREE PUBLIC LIBRARY
Bookmobile

— Portable television receivers with headphones.
— Phonograph records and tape players with headphones.
— Small slide projectors for viewing at a desk by one student or to be used in group study rooms by two to four viewers.
— Filmstrip projector (may be same as slide projector).
— Microfilm, microcard, and microprint readers. (No one micro-reading machine will accommodate all these micro-images. Two types of machines will be required.)
— Teaching machines.
— Small motion-picture projector for small group or individual viewing in one of the group study rooms.
— Portable radio receivers with headphones.

Dimensions for typical examples (only one will be cited) of each type of equipment are as follows:

— Portable television receivers. *Example:* Sony, with earphones, 8" screen.
— Motion-picture projectors (8 mm suitable for individual use). *Example:* Fairchild Cinephonic Mark IV. Cartridge loaded. Weight, 20 lbs. Dimensions: 13" x 14½" x 16".
— Portable radios (various sizes).
— Record listeners. *Example:* Audiotronics Corp., Model 400-VR-8. Dimensions: 16" x 18" x 16".
— Tape recorders. *Example:* Wollensak, Model T-1500. Dimensions: 16" x 12" x 14".
— Slide viewers with sound. *Example:* Viewlex, Sales talk V-2. Dimensions: 10" x 6" x 12".
— Filmstrip viewers. *Example:* Standard Projector and Equipment





(above) Waist-high shelves in the reference section, University of Chicago Laboratory H. S., enable students to use heavy reference books with comfort, by resting them on tops of bookcases; (below) Bracket stacks will accommodate study stands as well as lockers, interfusing them among books for quick note-taking; (right) Double-faced shelving at St. Louis County Library, raised eight inches from floor, avoids bottom shelf "bends"; (far right) Serpentine shelving, same library, provides a change of pace from conventional linear stacks.

Co., Inc., Model 200. Weight, 8 lbs. Dimensions: 7" x 9" x 9".

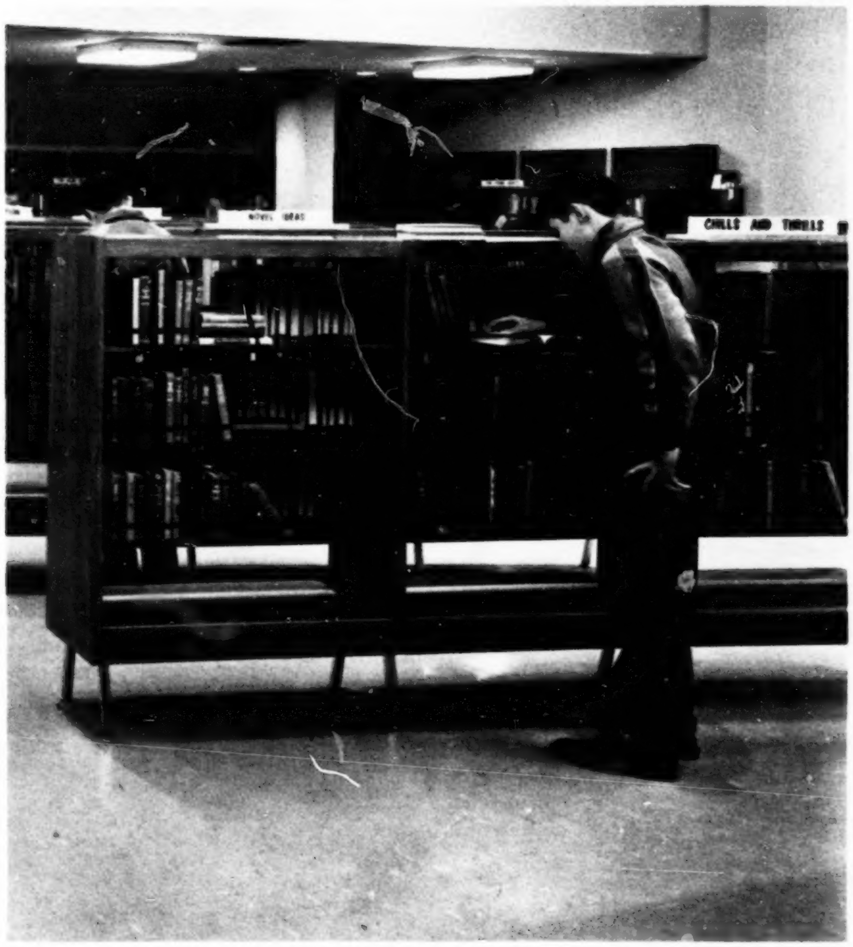
- —Microprojectors. *Example:* Bausch and Lomb, triple purpose 42-63-58-06. Dimensions: 4" diameter x 9" long, on stand.
- —Portable microfilm readers. *Example:* The Dagmar. Dimensions: 12" x 17" x 10".
- —Teaching machines. *Example:* Programed teaching Aid, 2002. Dimensions: approximate size of small adding machine.
- —Portable language laboratory. *Example:* Electronic Futures, Inc., Audio Notebook System. Dimensions: 4" x 10" x 12".

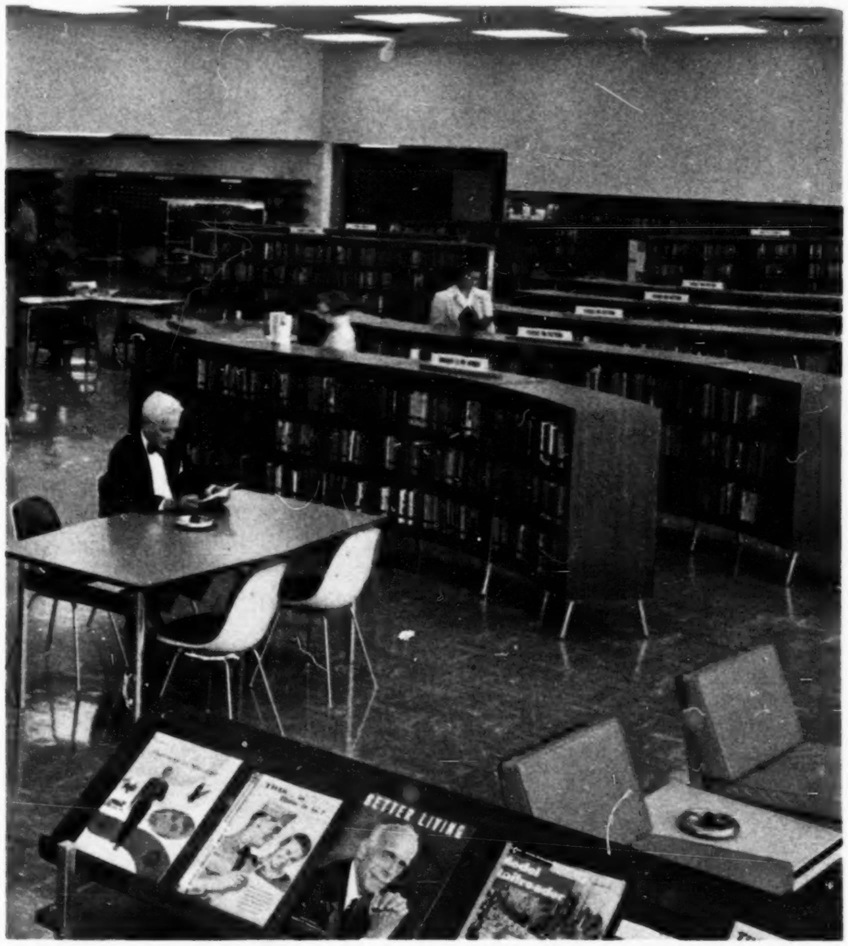
It should be noted that a good deal of equipment for the use of audio-visual materials is still manufactured primarily for group use and poorly designed for use by individuals. This is especially true of motion-picture projectors, though one recently introduced, cartridge-loaded 8mm. projector is an exception. There is also little material available on 8mm. film as yet.

Audio-visual equipment designed for classroom and large group use, such as overhead projectors and large motion-picture projectors, might or might not be kept in the library. In any case they would not be used there, but in classrooms.

If the library purchases a large microfilm reader, this cannot be moved around. The portable Griscombs or Dagmars can be easily moved, however. The 3M combined microfilm reader and printer is too heavy for moving and should be set up where it can be left permanently. Teaching machines vary in size so much that it is difficult at the present time to predict what kinds will be most commonly used. The trend would appear to be toward small portables.

Storage cabinets for equipment and the instructional materials that match them are listed on pages 261-6 of the ***Audio-Visual Equipment Directory*** of the National Audio-Visual Association, Inc. If the library staff does not include a media specialist, an expert should be consulted to make certain that purchases are consistent with the best developments in the field.





PLANNING: THE ENVIRONMENTAL ELEMENTS

Planning Starts With a Program: The fundamental factor that will determine the success or failure of a building is the planning. This starts with the preparation of a written program sometimes called "educational specifications." These are a statement of what the building is supposed to do and what activities it is supposed to house. It is the result of a painstakingly detailed analysis of each and every function, purpose, and objective desired of the new facility. When it is complete it provides a guide which tells the architect everything the school wants the library to be and do. It defines and describes the elements of the library and should try, too, to define the spatial interrelationships. The types and quantities of furniture and equipment needed, and the amount of space required for each function, should be specified. The program should not try to do the architect's work. Rather, it should tell him what the school wants. His responsibility is to see to it that the building will express the program.

Who Does It. The qualifications and experience of the individuals involved will determine the procedures to be followed in a given school situation. While most experienced school library personnel would have helpful suggestions, few would be qualified to take charge of the entire planning of a school library. Similarly, few superintendents or principals know enough about school libraries to qualify them for leadership in the planning, although the administrative responsibility rests with them. The most satisfactory solution, therefore, is the employment of consultants who are experts. It should be noted, however, that the basic assumptions made by school library experts are often limited to past experience. These assumptions have to be refashioned to meet the newer needs of today's schools

For a school library, the statement most likely will be a part of the educational specifications for the entire building. The first draft of a program is usually prepared by a committee consisting of representatives of the library staff, the teachers, and the school administration. If consultants have been brought in, it is here that they bring their experience to bear. School library standards, as proposed by school librarians, will provide helpful quantification data.

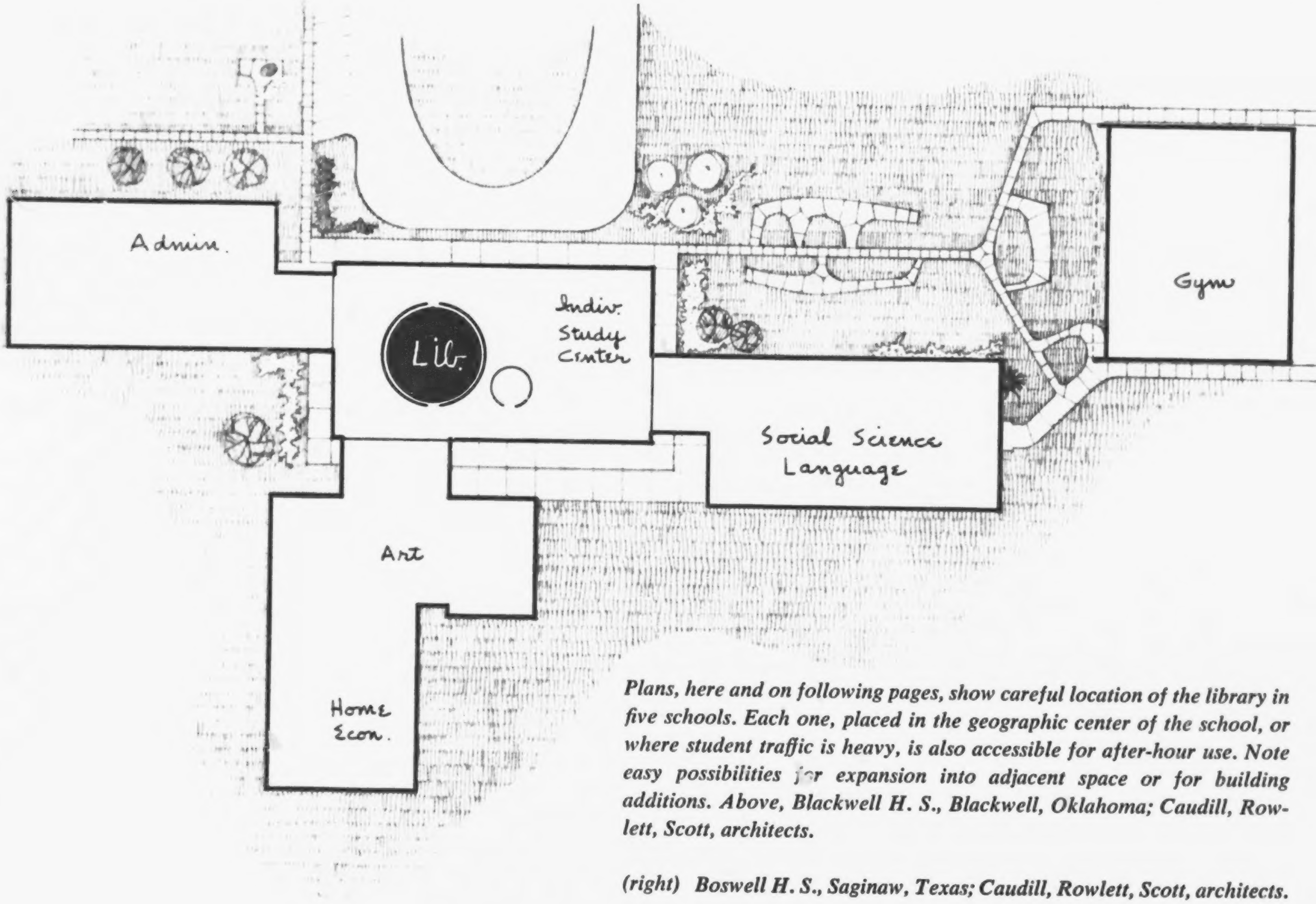
When the first draft is complete, the architect should be brought into the picture. Architects, like administrators, teachers, and library personnel, differ widely in their ability and experience with a specific building type. A licensed architect, however, should know how to find out what he needs to know. After discussion between him and the library planning committee which, of course, works closely with the superintendent, examples of successful school library plants should be studied and visited. Following this, a final statement of the program should be drawn up by the committee with the architect's help.

After the program has been turned over to the architect, and he begins to develop plans, each stage of the plan should go back to the planning committee for approval.

students will use a good school library even if it is inconveniently located, but in fact, a poor location does discourage use. The library, therefore, should be in the geographic center of the building, or to put it another way, along one side of the point where the heaviest traffic converges. But since it may be hard to reconcile this geographically central location with a need to locate the library so that it can be kept open evenings and weekends when the rest of the building may be closed, some compromise will have to be made. One might say that the library must be the center of the school in spirit and as close to the geographic center as possible.

Under these circumstances the best location is along the edge of the center—on the periphery of the building, that is, rather than deep inside it—so that an entrance can face onto the street for direct access, eliminating the need to go through other parts of the building to reach it. Thus the library can be operated as an independent part of the school plant, remaining open when adjoining building areas are closed.

A factor to be kept in mind in the initial location is the potential for future expansion. Up to the present time, school administrators have solved the problem of library growth by the simple expedient of not allowing the library to grow. But this doesn't work. Any organism can be dwarfed by lack of feeding, but that is what it will always be: a dwarf. It is the nature of collections to expand, and they



Plans, here and on following pages, show careful location of the library in five schools. Each one, placed in the geographic center of the school, or where student traffic is heavy, is also accessible for after-hour use. Note easy possibilities for expansion into adjacent space or for building additions. Above, Blackwell H. S., Blackwell, Oklahoma; Caudill, Rowlett, Scott, architects.

(right) Boswell H. S., Saginaw, Texas; Caudill, Rowlett, Scott, architects.

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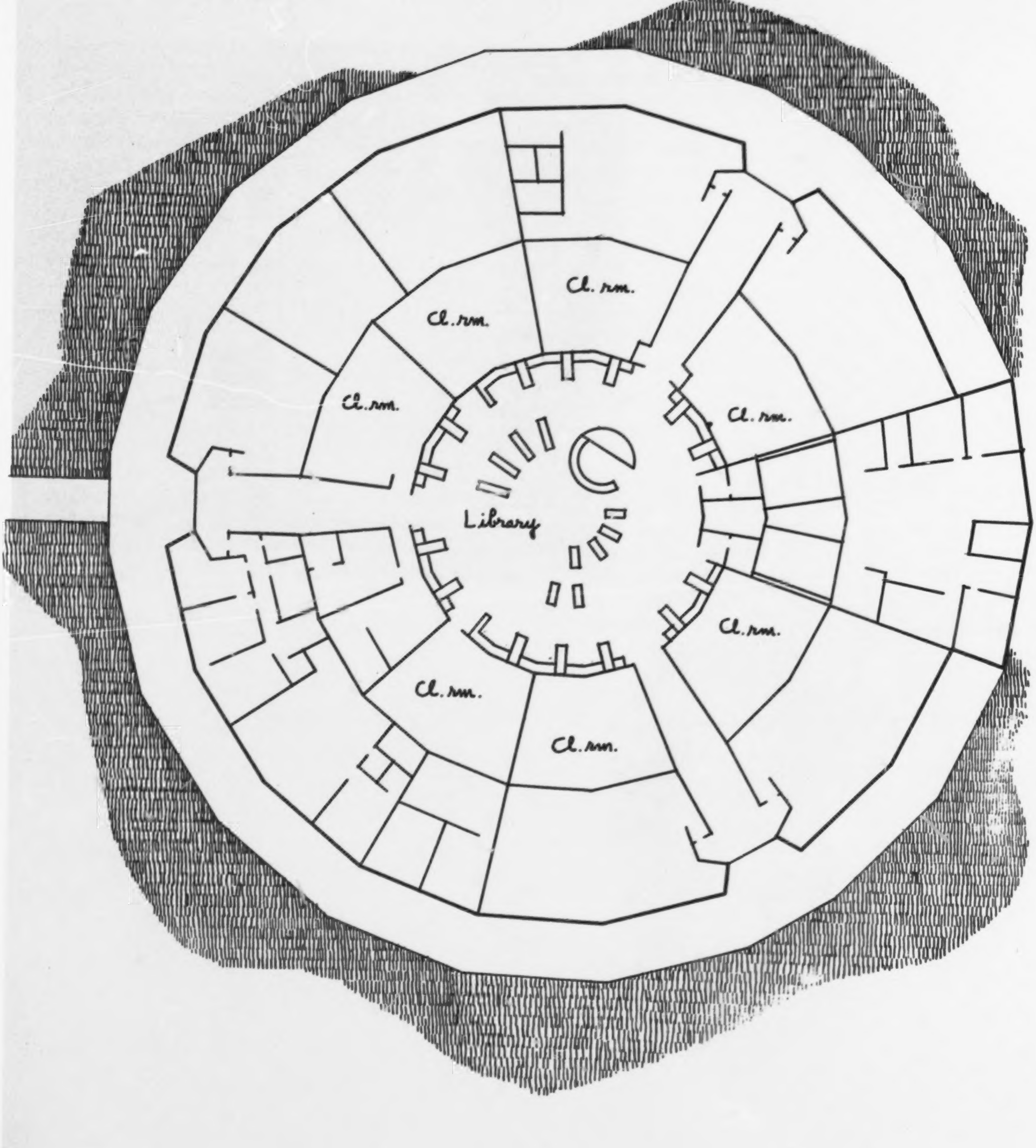
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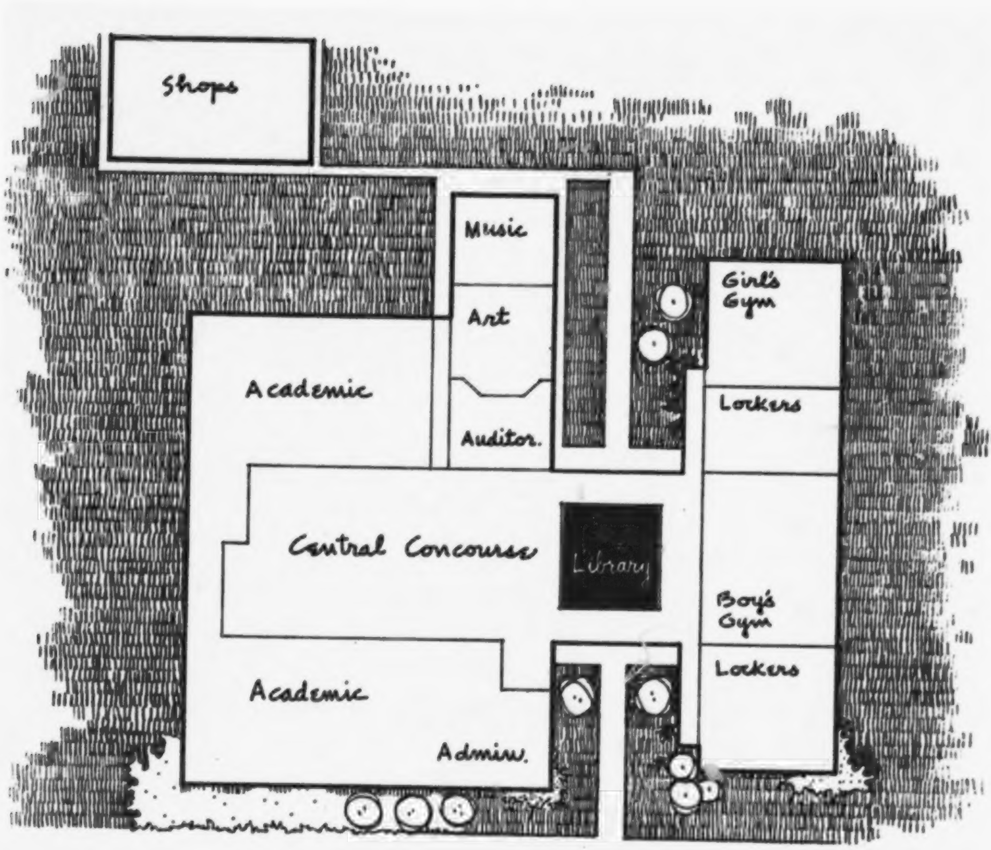
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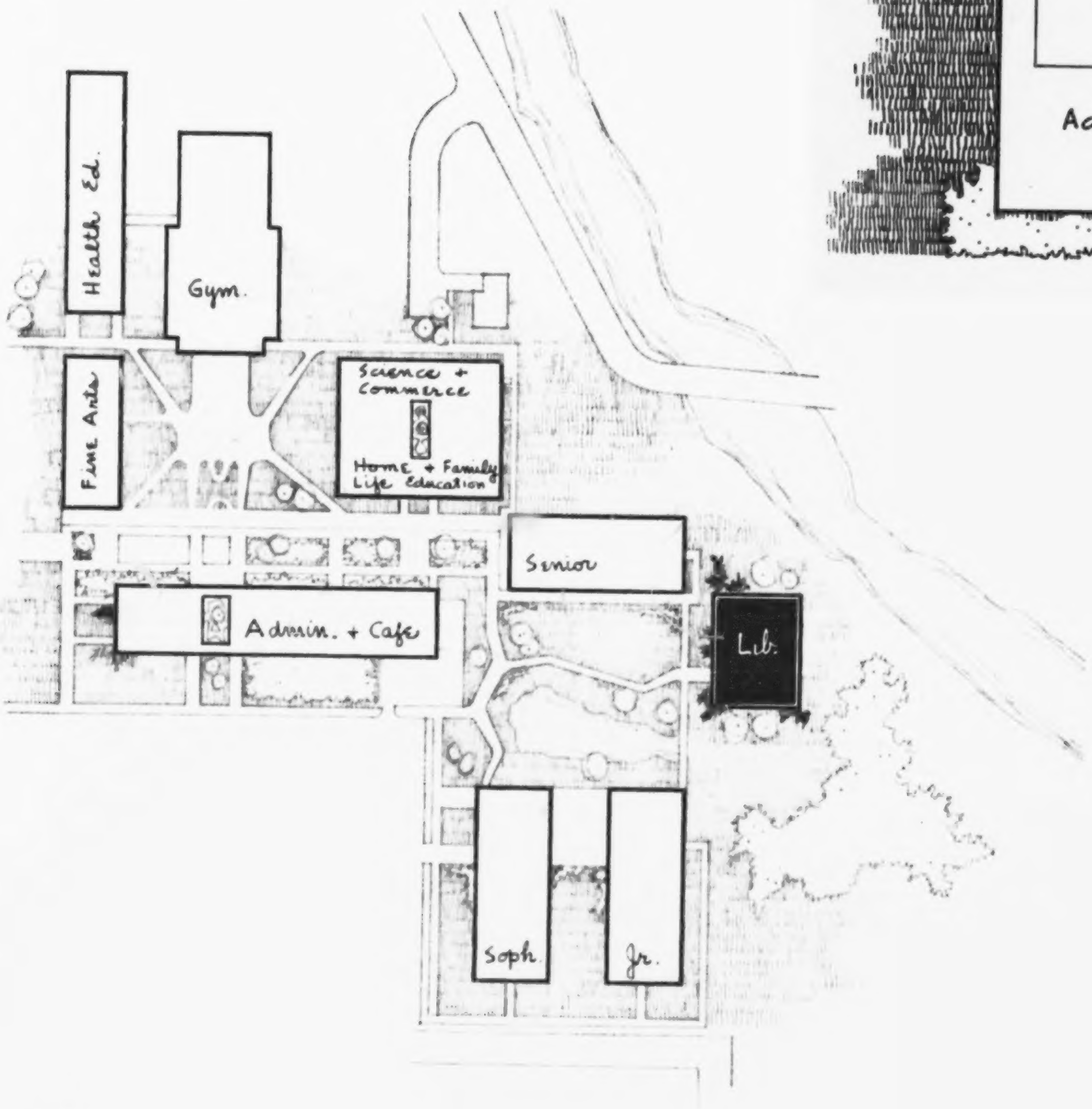
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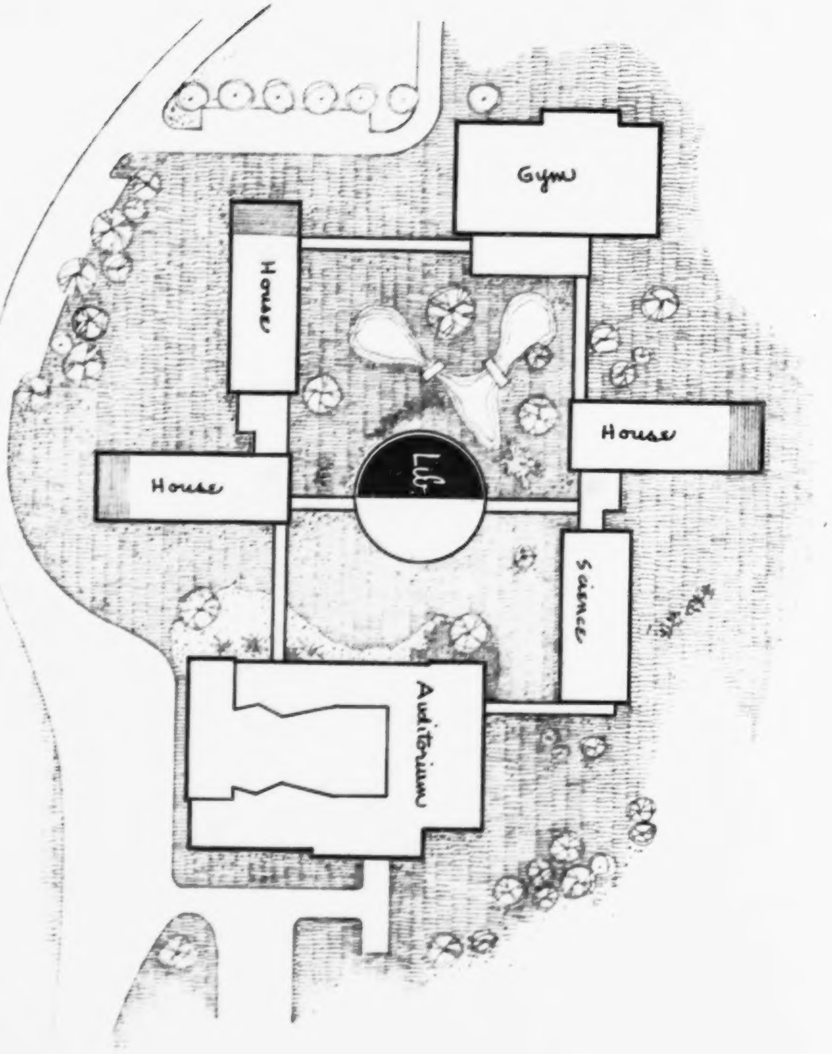
must be allowed to do so to be fully effective. College and university libraries double the size of their collection every 16 years. For every book discarded, they must add a few to keep up with the new fields of knowledge that are developing at an increasing rate. The problem of library acquisitions that multiply over the years is one that is solved by microreproduction of material, interlibrary storage centers, and various other arrangements. Large college and university libraries for which planning is done in terms of centuries rather than decades, are more deeply concerned with this than are school libraries, since most school buildings are abandoned somewhere between the 50th and 70th year of their lives. But for the 5 to 7 decades of their existence, there is every reason to believe that school libraries will grow at a rate similar to that of the colleges, since the amount of new books that will be required at the secondary level will be nearly as great as at the higher education level.

Similarly, space must be available for expansion as enrollment grows, since any school that wishes its students to develop initiative in learning will need to maintain seats in the library for 30 per cent of the student body. The fact that few schools have done so is an indictment against the schools, not a denial of need.

When the new school building is planned, therefore, areas adjacent to the library should consist of classrooms and other types of easily alterable structural spaces that can be gradually taken over by the library as it expands, and as the need for these auxiliary spaces diminishes. (A further reason why each instructional or laboratory center should ideally back up against the library is that students and teachers can move from one to the other readily.)



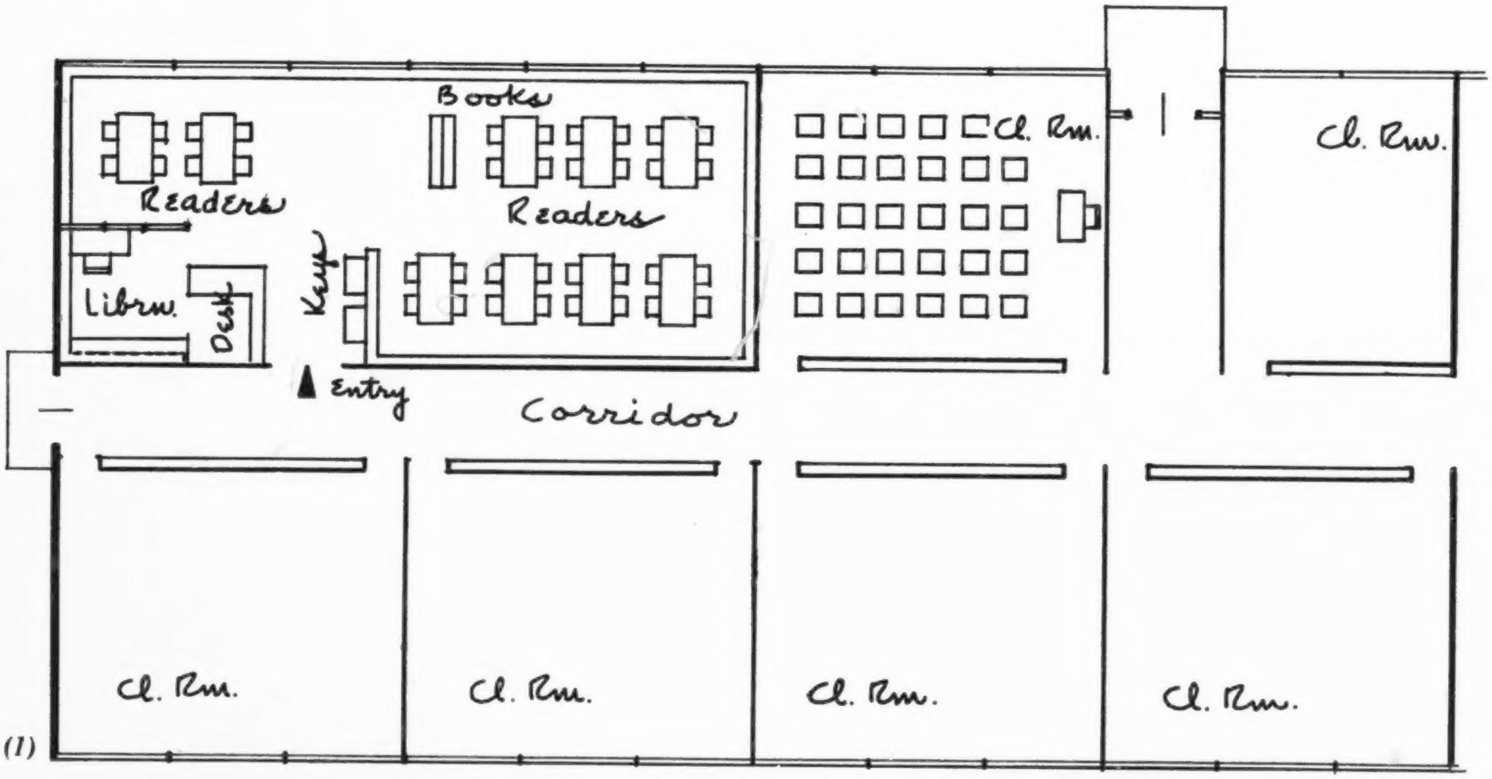
(above, left) Andrews Sr. H. S., Andrews, Texas; Caudill, Rowlett, Scott, architects. (left) San Angelo Central H. S., San Angelo, Texas; Caudill, Rowlett, Scott, architects. (above, right) Newton South H. S., Newton, Mass.; Korslund, Le Norman and Quann, architects.

In a Remodeling. To engage in the remodeling of an existing library which does not permit an expansion of the space, is unwise. Present day enrollments require more, not just the rearrangement of old space. But there are occasions when a building program does call for renovation that is not for purposes of expansion, but to house new facilities.

Each remodeling problem will be a unique one, but in general the recommendations of this report will serve as guidelines toward what the new library ought to be. If the remodeled library is to be relocated within the existing building, the planners had better ask themselves: will the proposed new location be where there is enough traffic and activity to attract students to that part of the building as a normal part of the daily routine? Can it be kept open when the rest of the building is closed? Can it be enlarged?

We know the considerations involved in arriving at the answers to these questions. But another question to be asked—is the space suited to library operations?—will depend upon whether the space to be converted is a large, open area uninterrupted by bearing walls. If it is, it will make for a successful conversion. If it is cut up into a series of small rooms, with walls that can't be eliminated, it is not likely to make a good library. If, on the other hand, it is made up of both large, open areas and a series of small rooms, it may work well.

SCHEME FOR REMODELING AND EXPANDING EXISTING LIBRARY IN TYPICAL SCHOOL



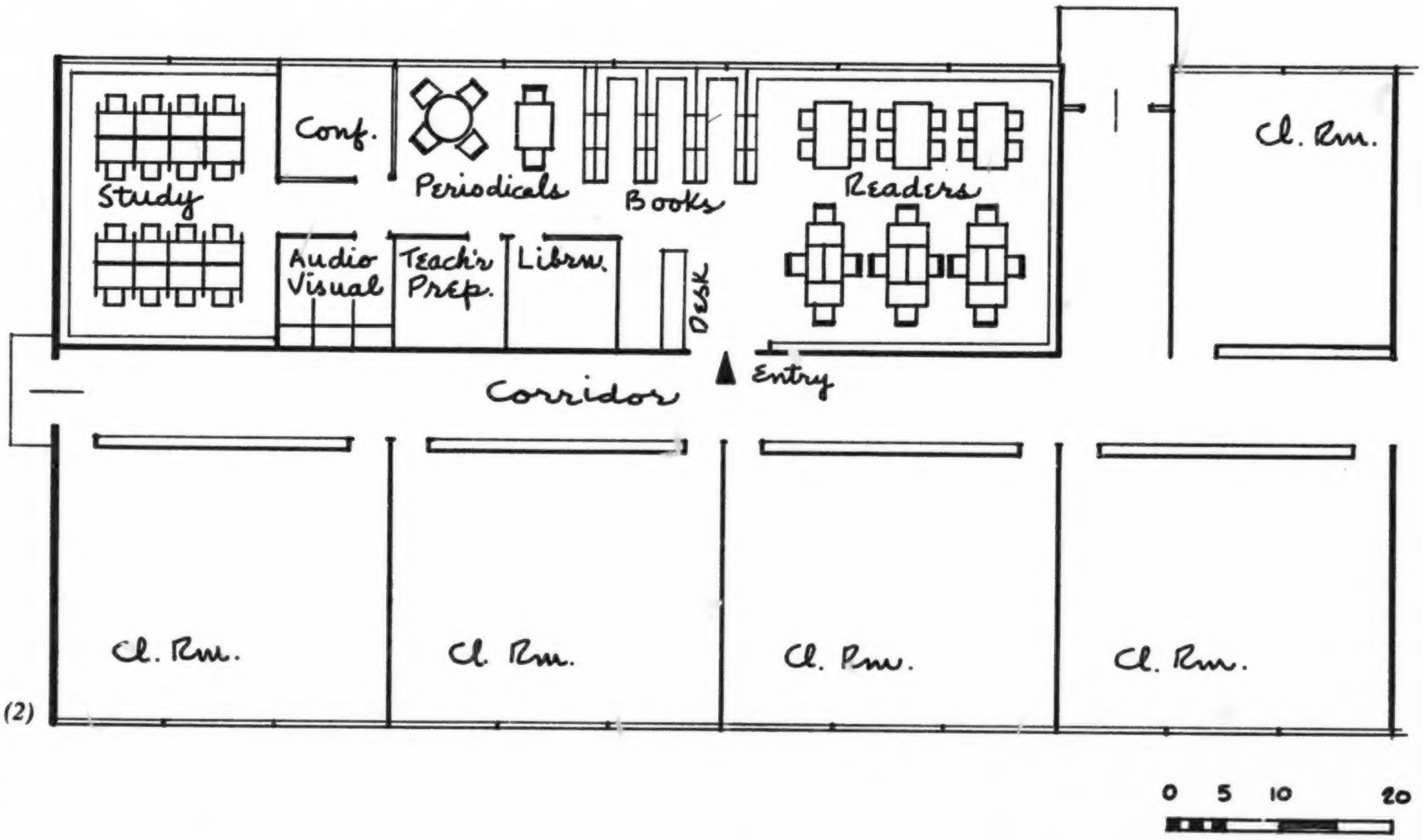
(1)

(1) Many existing schools with the typical "cells and bells" arrangement of classrooms have a library similar to this one. (If no library exists, make one by converting two classrooms at end of building.)

(2) SUGGESTION FOR EXPANSION: The library may continue to grow, requiring more space than that provided in a first expansion. Pave way for it by placing charge desk and keys adjacent to corridor, in center of library, with reader facilities at ends of rectangle.

(3) FOR A SECOND EXPANSION: Enlarge by absorbing corridor and opposite classrooms. Note location of door for odd-hour use. (Classroom section of building can be gated.) For a greater amount of space or subsequent growth, extend vertically into second floor. Place stairway near control desk.

(2)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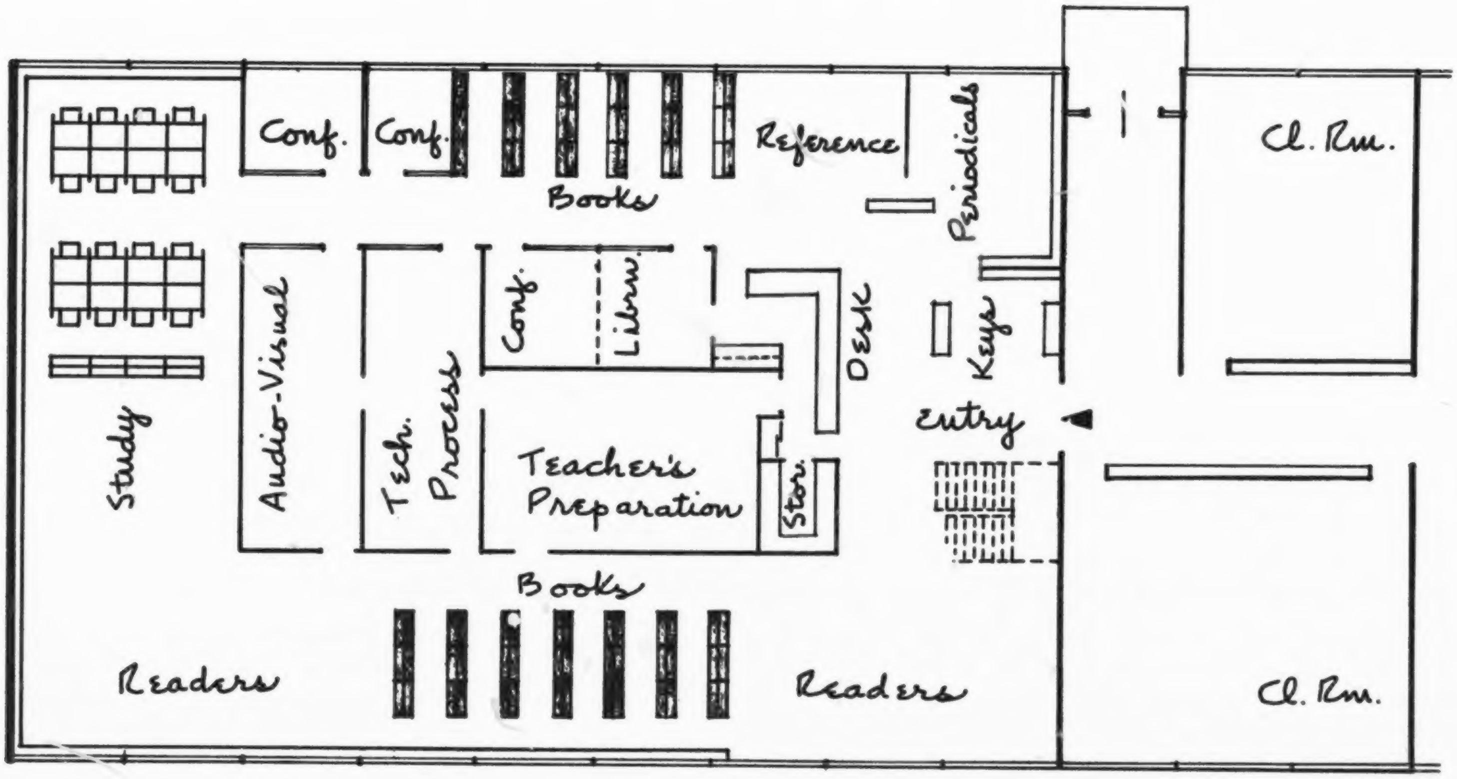
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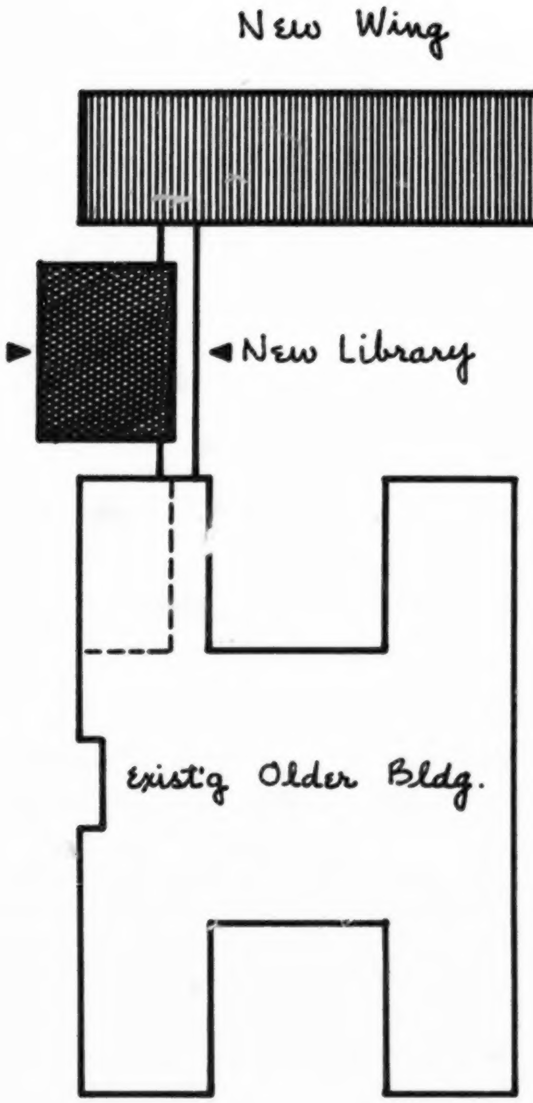


(above) Location of library as a building addition in an enlargement program.

In a Building Addition. In an enlargement program where new buildings are being constructed, a good location for the library is at the juncture of the old and new buildings, possibly in a semi-independent structure bridging the old and the new.

Sometimes the old library can be left to serve as a branch of the new one, but the question of how it is to be staffed should be settled in advance. Perhaps the old one could be filled with study carrels containing facilities for the use of television, radio, phonograph, tape, teaching machines, and the like. In general, it is best to convert the old library to classrooms or other kinds of facilities, and organize the whole library as a single entity in the new addition.

The Shape: A school library can be more than one floor level, provided that the floor-to-floor dimensions are not too great and that booklifts or some other mechanical means of moving booktrucks up and down are provided. A two-story library has a higher unit staff cost than does one on a single floor.

College library experience suggests that the ideal shape is a three to five rectangle with the entrance at the one-third point along one of the walls. But since the shape of a school library may be determined by the rest of the building, the architect seldom has an opportunity to plan one that is ideal. A round shape has not generally proven to be satisfactory because the dimensions of library furniture and equipment are linear or block, making it diffcult to arrange them in a round container without wasting space. Book ranges, unless they are run parallel to each other, work out either too tight or too loose. In addition, the circular form presents problems when the library has to be enlarged. (Examples can be found in several schools and colleges in the United States, and in Great Britain's universities, *e.g.*, Leeds, Manchester, Glasgow.) Neither is a very long, narrow space good because it forces furniture and book ranges to be lined up almost row on row, so that the reader has to walk through reader spaces to get at materials. In determining the shape, it is well to remember that the staff will have to work with students in all parts of the library, not just where the keys are. Also, the shape will be affected by the nature of the lighting and ventilating system.

The experience of college and university libraries again shows that the best kind of space for a library is that found in a loft or modular building, because this allows maximum freedom to form the library by means of movable partitions and freestanding furniture and equipment. Ceiling heights should be such that the atmosphere of a living room can be achieved. Good examples of this kind of space can be found at Colgate, Cornell, University of Georgia, Douglass College, Florida State, Louisiana State, and San Jose State College, as well as others.

But the problem of designing a library as a separate structure is quite different from that of designing one which is part of a larger structure. In the latter it is hard to satisfy the functional needs of the library and at the same time give the space the kind of architectural quality and variety a library deserves. Because the need for high ceilings in the library may not be so great as it is for functions in adjacent space, the architect may strive to locate the library so that it has a kind of architectural independence in the larger structure.

Lighting Levels and Qualities: There is some uncertainty about what lighting levels are best for readers. Ophthalmologists apparently have done little research on this problem. The December, 1961 issue of the *Library Journal* carries a piece by K. D. Metcalf which quotes one ophthalmologist as saying that as far as health is concerned, there is no necessity for relatively intense illumination—*i.e.*, above 50 foot-candles.[14] Representatives of manufacturers, on the other hand, tend to recommend very high intensities, even up to 500 foot-candles.[15] The sales talk for higher light levels offered by representatives of the light fixture manufacturers should be regarded warily. Too much light is harder on the eyes than too little.

The findings of the Illuminating Engineering Society are that reading room light levels should be maintained at 70 foot-candles after initial drop-off. We recommend that this be accepted until and unless new research brings better information, though we do so with reluctance and scepticism for the reason that even these levels may be less the product of scientific data than the role played by salesmen. We prefer to use 50 foot-candles.

It is well known that the reader's feeling of comfort in a reading room will be determined by the quality of the lighting and the degrees of contrast, as well as by the light levels. Mixing incandescent with fluorescent lighting is a good way to avoid the cold feeling sometimes associated with fluorescent installation. To reduce glare, as well as for other reasons, all fluorescent tubes should be shielded by baffles or glass or plastic lenses. Where special lighting at carrels is provided, the level of overhead lighting can be dropped. For some reading equipment, such as microfilm readers, it is essential that the room can be dimmed.

The recommendations of the architect should be followed on lighting matters, but to be sure that his knowledge of the subject is current, it would be well to make certain he has read the following reports:

—University of Michigan Conference on "Light and Vision," March, 1958. Full proceedings of the conference available from the School of Public Health, University of Michigan.
—*American Standard Guide to School Lighting.* American Institute of Architects; Illuminating Engineering Society; National Council on Schoolhouse Construction; New York, 1962. (Available from the Illuminating Engineering Society, 1860 Broadway, New York City.)

Color: The color of every square foot of surface in the library should be determined by the architect, too. He will know when to use the services of an interior decorator.

The Illuminating Engineering Society's recommendations for degrees of color contrast in a room should be followed, though there is a conflict of interest there. If the advice of the lighting scientists is adhered to, the result may be an area dominated by pallid, pastel shades of color without much personality, charm, or individuality. The use of strong, bright colors may not be too good for the eyes, but if it helps students to like the library perhaps these colors are justified even if they are not the best for eyes. To resort to an analogy, perhaps for the good of our stomachs we should always boil our fish. But we get bored with boiled fish, so we eat it fried or broiled even though our stomachs may have to work harder.

Table top surfaces should be light enough to avoid sharp contrasts, but not light enough to encourage their being used as writing surfaces. Good fabrics and pleasant-looking furniture help. Carpeting, now being recommended for libraries for a variety of reasons, contributes to a homelike, living room atmosphere.

Temperature: Given the existence of every other element carefully calculated to invite study, if the library is too hot or too cold it may drive students away. Dr. Archibald Shaw reports a dramatic but not atypical example in a recent issue of *Overview.* "In one great Midwestern university," he writes, "the library was so steaming hot even in the evenings that all but the most conscientious students hurried through their reference work and escaped thankfully outdoors as soon as they had done the minimum amount of work."[16]

Most school buildings suffer from excessive heat rather than cold. The reason? People themselves are heat-producing machines. Metabolism, or the process in which food consumed by the body is translated into energy, results in the loss of body heat. The heat dissipated through the skin and expired air of many bodies, confined in a given space, adds considerably to a build-up of the temperature level provided by the building's heating system. So much so, in fact, that the removal of heat can become of more immediate concern than the provision of heat. In an experiment conducted by a heating consultant in a Moline, Illinois, classroom on a cold day, it was found that heat needed to be put into the room only from 7:00 to 8:30

Lit-up library, open at night when school is closed. A must for students with after-school jobs and a boon for those who burn the midnight oil, night hours up use of the library's resources.

AM and again between 12:00 and 1:00 PM. The rest of the day it had to be removed.

Metabolism varies with age, sex, climate, physical activity, etc. Women generally have a lower metabolic rate than men, and children a higher one than adults (which means that they are comfortable in a cooler room than grown-ups—usually five degrees cooler). While everyone knows that physical activity boosts body heat, it is not as generally known that mental activity also does. A recent report on thermal comfort in schools makes the point that the body temperature of first graders will sometimes rise to 102 degrees F. during the intense intellectual demands of the arithmetic process, and that "Emotional responses which enter into the attitudinal aspects of learning can increase heat production 10 per cent over basal production . . . ."[17]

Aside from the discomfort one may conciously experience in an overheated room (which may drive the occupant out if he is unable to correct it), there is another matter: fatigue. The body itself, without its owner's conscious awareness, responds in a muscular way—via posture—to uncomfortable thermal situations. If it is cold, the muscles tighten up to contract the body, exposing less body surface to the air and thereby reducing the outlet for heat loss. Conversely, if it is too warm the body compensates by sprawling in order to expose a maximum amount of its surface. With the need for such postural adjustments (and the contortions of television wrestlers are only little more impressive than the range and variety of postures observable in libraries and study halls) the efficiency of the individual is impaired. L. P. Herrington, Yale University's environmental physiologist, puts it this way:

> "Even though the deviation from an ideal atmosphere is slight, if the tasks at hand or the pursuit of the interests and activities desired do not permit an adjustment of activity or posture consonant with the subtle change of postural tone which is thermally determined, the individual experiences distraction and a subjective sense of effort which is unpleasant and fatiguing."[18]

Since the point in planning is to keep at a minimum those environmental factors which may place handicaps on the student, concern with his thermal ease is not an effete catering to his creature comfort. It is a practical affair; its purpose, to permit the student to stay in the library over a sustained period without reducing his efficiency or productivity.

A number of schools in the U. S. (there are now over 200 and the number is growing rapidly) are enjoying the benefits of air conditioning bought at little extra cost, or startlingly, at no extra cost at all if built into the original design of the building. Make certain your architect has read EFL's *High Schools 1962* which tells the design and cost story of the high school at McPherson, Kansas (built, fully air-conditioned, at a cost of $11.37 per square foot), and gives the facts on other economically constructed air-conditioned schools as well.

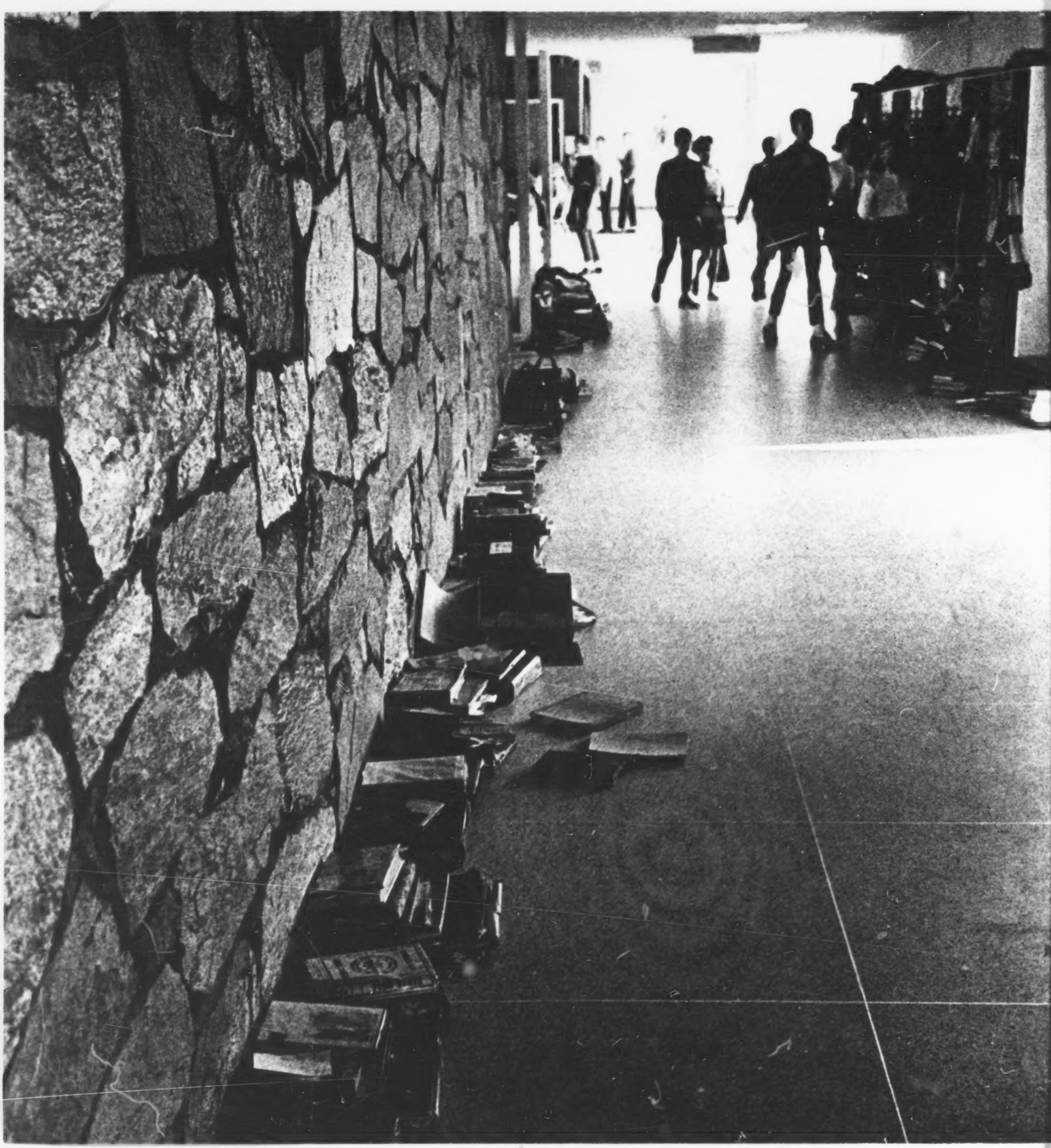
Staff members in charge of library reading rooms should assume responsibility for maintaining proper temperature levels. Under no circumstances should reading rooms be permitted to exceed 70 de-

Carpeting, utilitarian and gracious, is coming into greater use in schools and libraries. Here, students at both ends of the educational ladder enjoy its non-institutional warmth—in the library at Foothill Jr. College, Los Altos, California, and on the multi-level floor of the storytelling room, Kansas City Public Library.

grees in winter. Humidity levels, also important, should be kept between 35 and 45 per cent. Engineers should see to it that controls for temperature, humidity, and air movement (the latter will make higher temperatures less objectionable) are available and workable.

Sound Levels: There are few things more injurious to the image of a school library than the librarian who tries to maintain a tomblike silence. Wise librarians don't do this, but there seem to be plenty of unwise librarians. The recommendations of this report for the zoning of interior areas and layout of equipment will help to keep noise at an acceptable level. But carpeting, now in use in a number of schools and colleges, is a highly effective means of softening floor-generated distracting noises in places where traffic is heavy. Foothill College, California, installed some 2,000 square feet of carpeting in its library to solve a severe acoustical problem. Andrews High School, Texas, planned for carpeted floors rather than the usual vinyl asbestos tile because of the importance, in its open plan design, of trapping sound at its source, or stopping it from starting in the first place. Like air conditioning—which, incidentally, is in itself an acoustical aid because it creates a comfortable backdrop noise that masks sharp sounds—carpeting adds amenity but need not be expensive. Though it does cost more initially, these schools (and others described in EFL's *High Schools 1962*) expect that, in general, carpeting maintenance will cost 40 to 50 per cent less than that of a tile floor. In a six to eight year period the saving in maintenance is expected to offset the difference in initial cost.

A natural hum of activity without intelligible speech or loud impact noises, both of which distract students from the task at hand, is what librarians as well as students want. Carpeting—and air conditioning—will help to achieve it.



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A GALLERY OF PROTOTYPE ARCHITECTURAL DESIGNS

On the following pages are a series of plans for school libraries. These plans are the physical expression of what has been said in this report. They are hypothetical, general concept studies to suggest a variety of architectural solutions. Different situations were assumed in order to explore a number of possible designs. Central to each of the plans were these considerations:

Strategic location—to express the library's role as a very special place in the school, to make daytime use convenient and after-hour access practicable, to permit orderly expansion.

Spatial relationships—to join the things in the library and the places for their use; to route the flow of traffic from entrance to keys to materials to reading zones, with service areas located for active assistance to students; to create a mix of open zones, smaller group areas, and private enclosures so there may be a variety of spaces and moods for different types of learning and different personalities of learners.

Flexibility—for easy adaptation to changes in enrollment, in educational program, in teaching methods, in communications technology.

Esthetics—not as ornamentation nor for the sheer pleasure of an attractive surround, but for the same practical reasons that motivate industry to bring amenity to the factories and offices where people work: because we respond affirmatively to an environment which is respectful of our individuality and pleasing to our senses.

For this reason all the designs suggest that furniture, draperies, carpeting, and wall and ceiling materials be selected with a view to texture, form, and color; that contrasting ceiling heights, garden areas, interior courtyards, and spaces resulting from structural concepts, be used to surprise and delight the eye.

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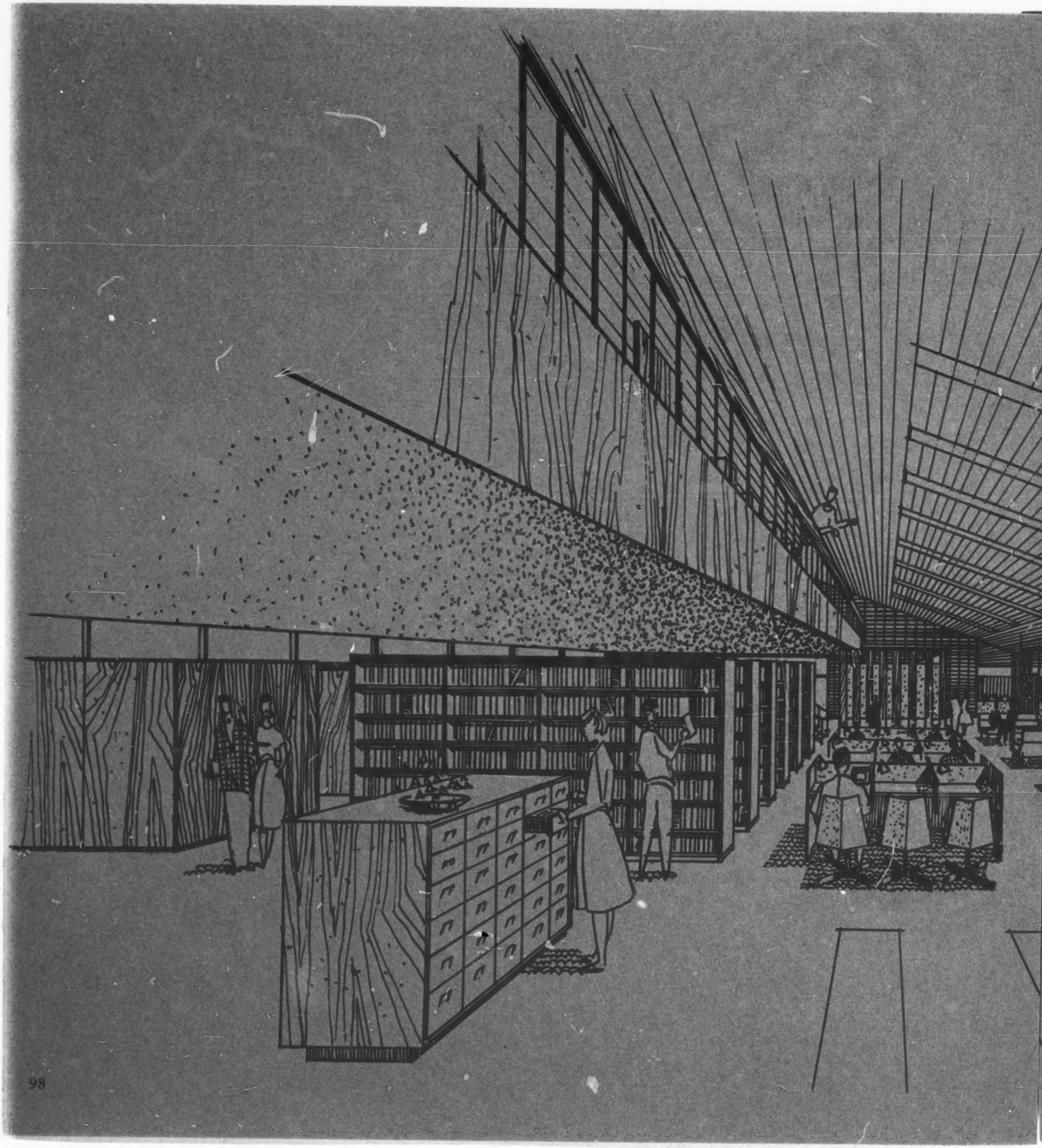
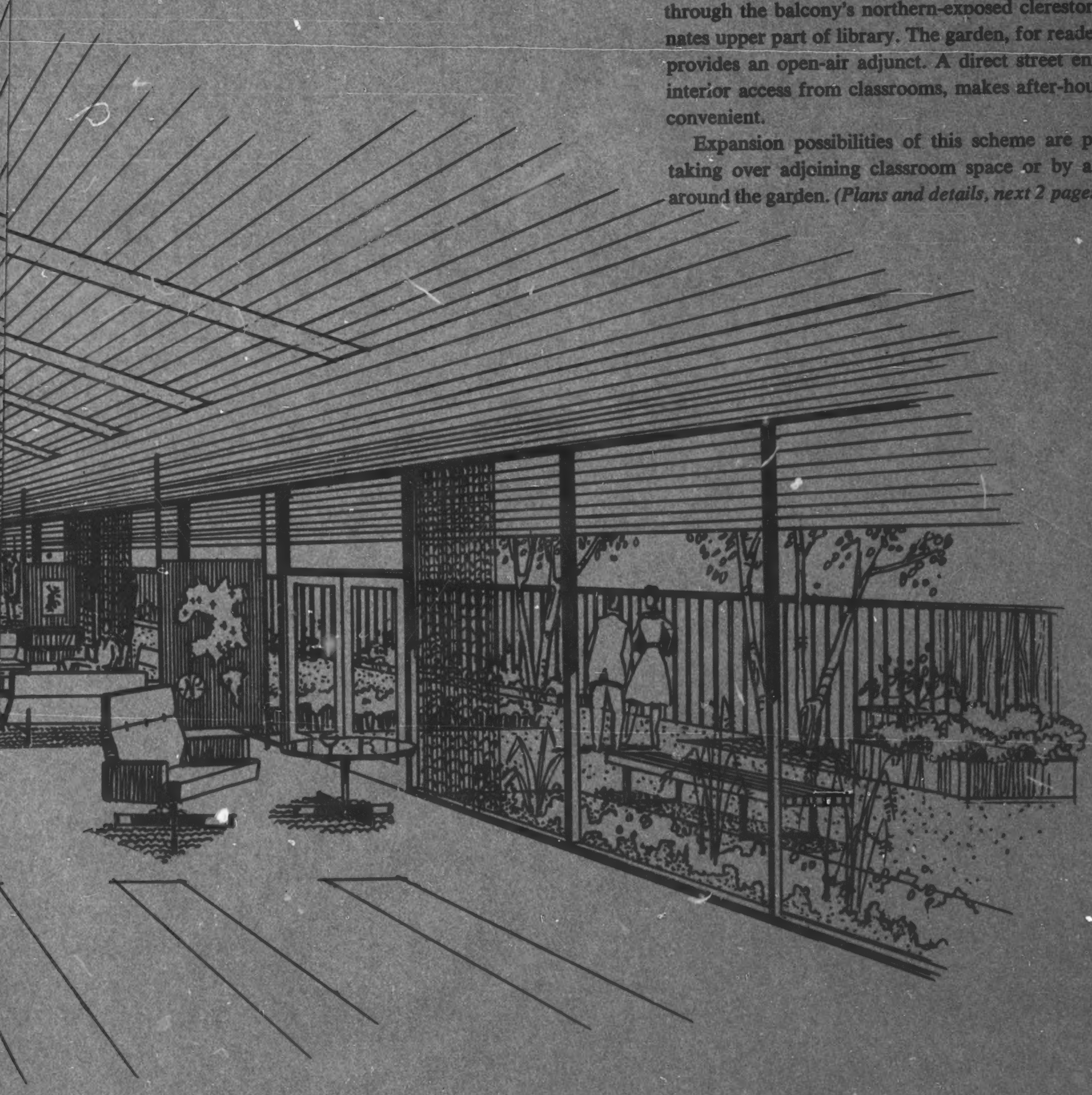
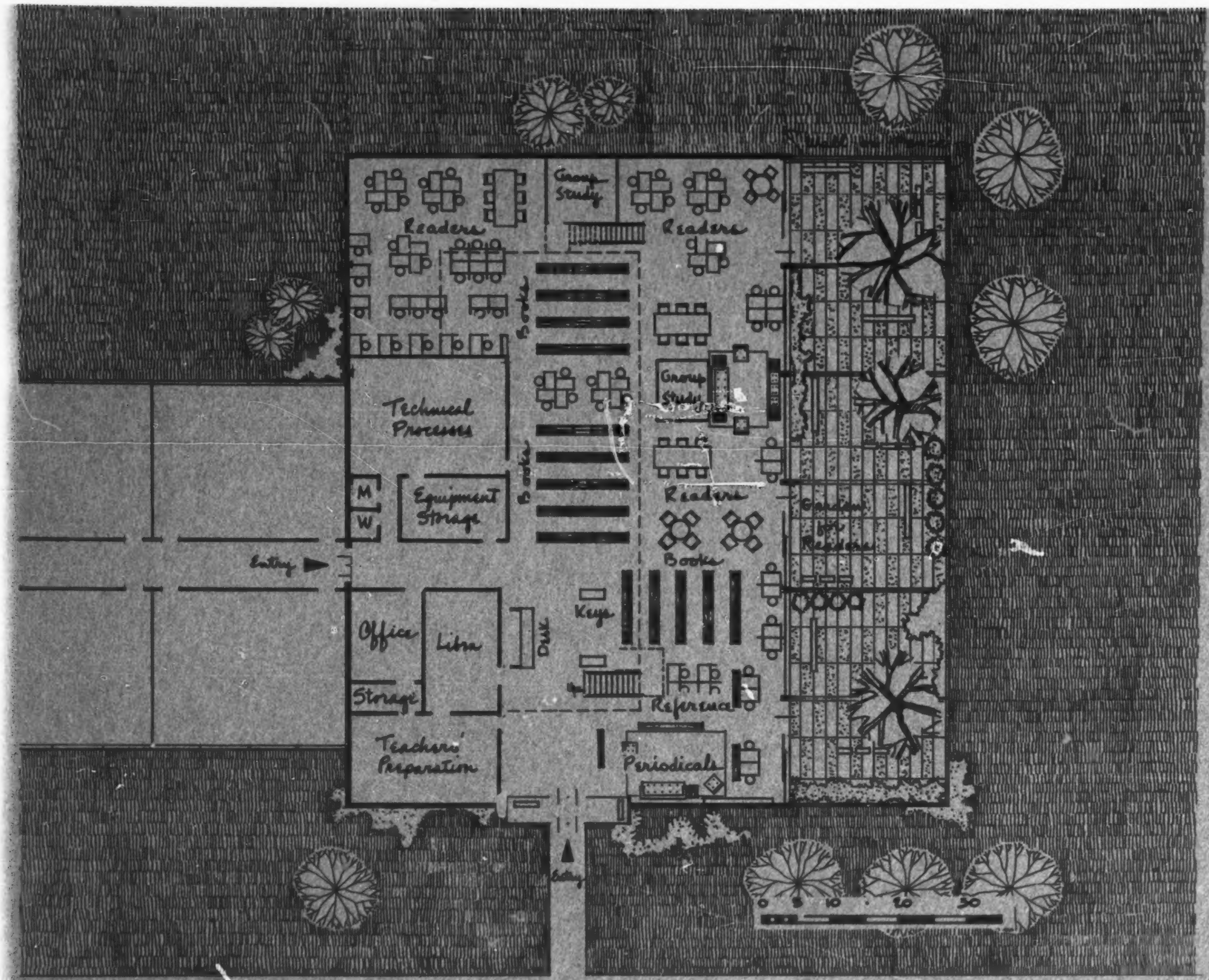


SCHEME 1

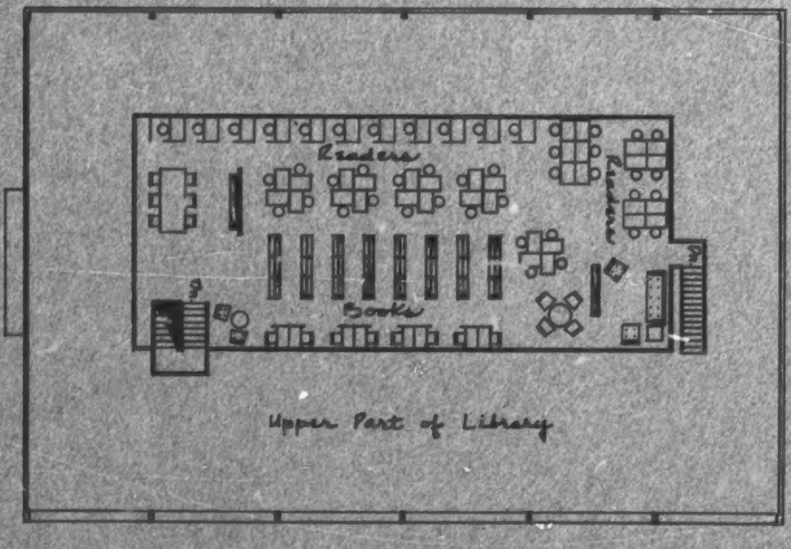
A balcony and gabled roof add spatial spice to this simple rectangular plan, creating a variety of settings. Beneath the balcony's low ceiling, sheltered nooks neighbor a large, open reading room. From the balcony itself, as from a high-up treehouse, is a vista of the reading room landscape below. Natural daylight admitted through the balcony's northern-exposed clerestory windows illuminates upper part of library. The garden, for readers as well as grass, provides an open-air adjunct. A direct street entry, in addition to interior access from classrooms, makes after-hour and evening use convenient.

Expansion possibilities of this scheme are perfect: growth by taking over adjoining classroom space or by a building addition around the garden. *(Plans and details, next 2 pages.)*

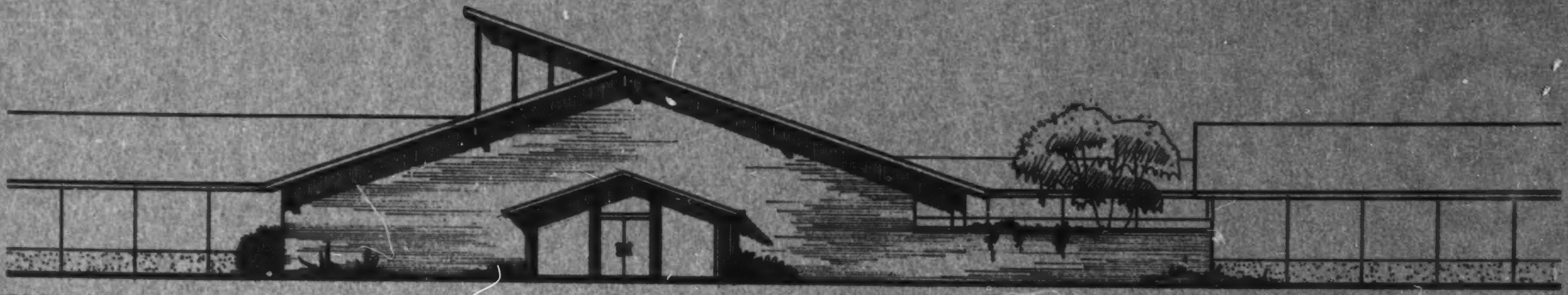



Group Study
Readers
Readers
Books
Group Study
Technical Processes
M
W
Equipment Storage
Books
Readers
Books
Entry
Office
Libn
Desk
Keys
Storage
Reference
Teachers' Preparation
Periodicals
Garden for Readers
Entry
0 5 10 20 30

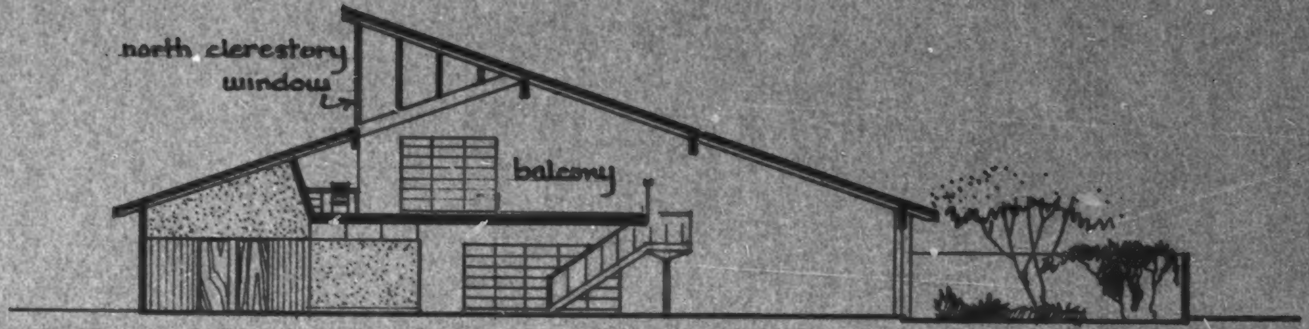
MAIN FLOOR PLAN


Readers
Readers
Books
Upper Part of Library

BALCONY PLAN

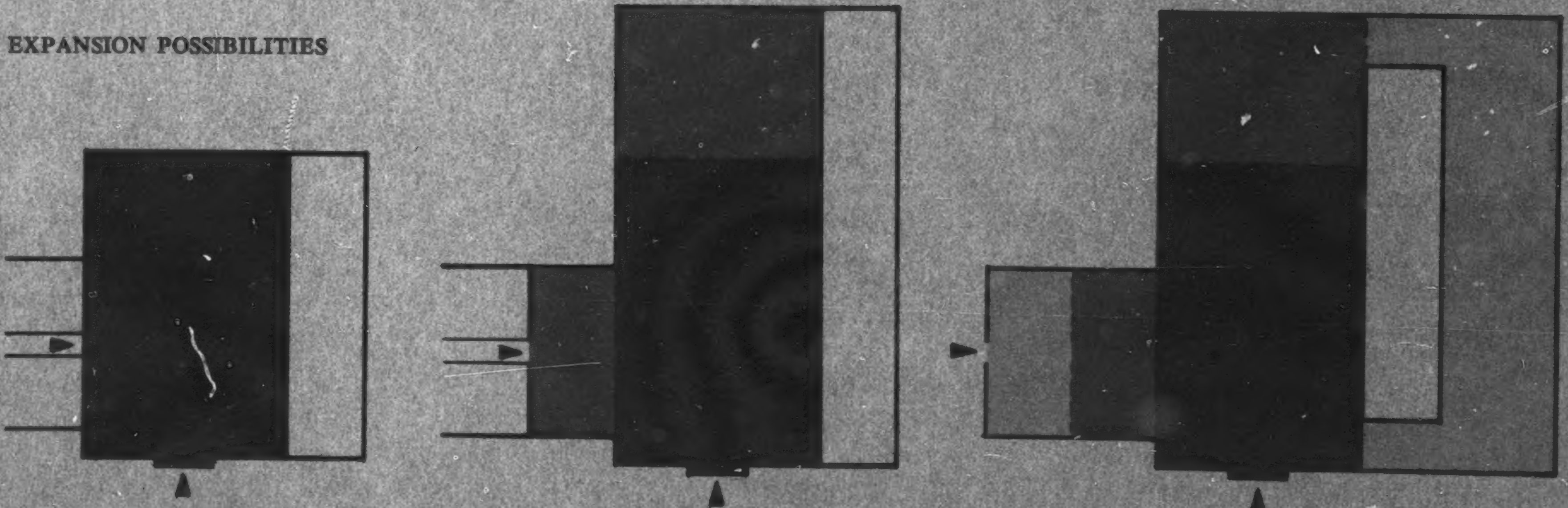


ELEVATION


north clerestory window
balcony

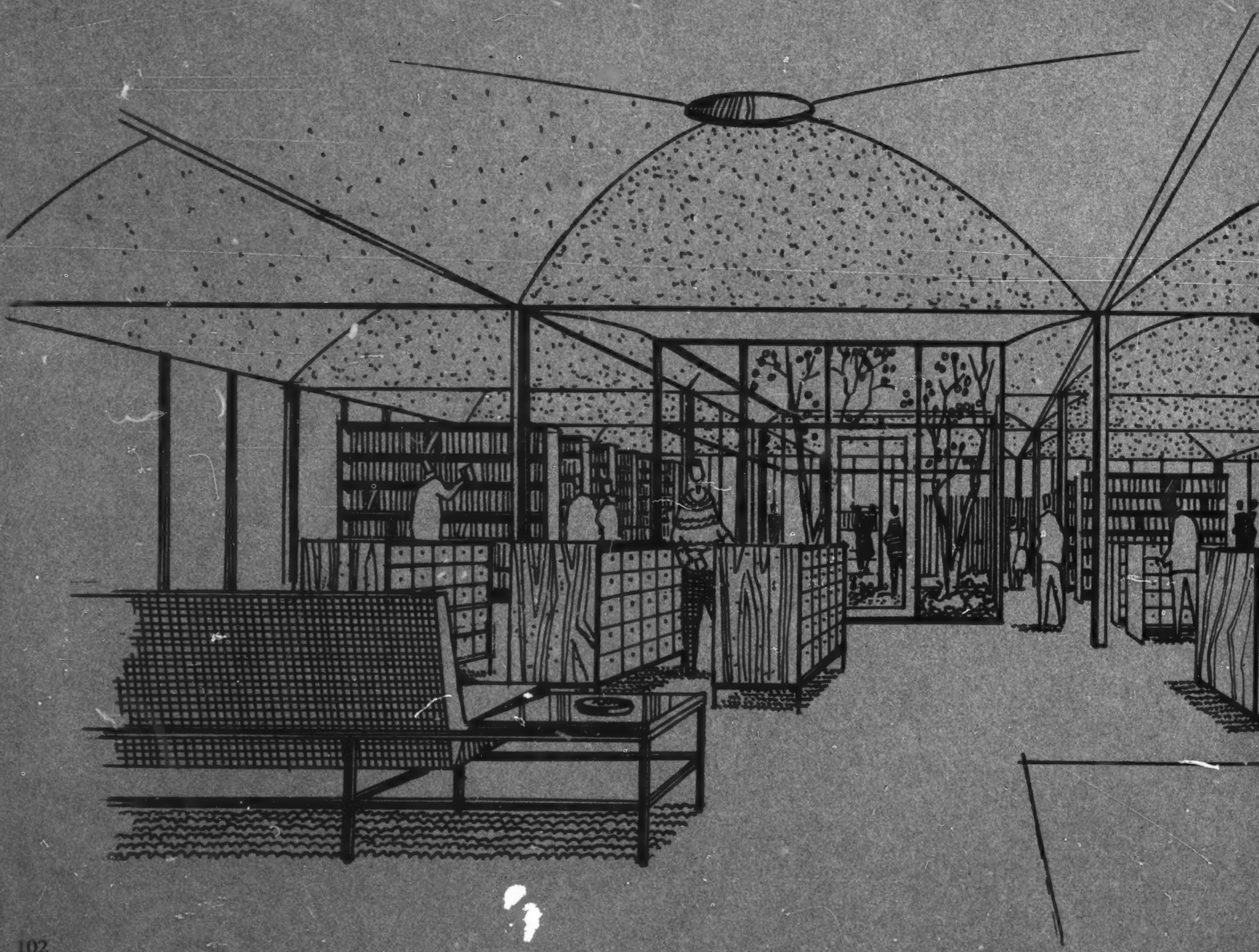
SECTION

EXPANSION POSSIBILITIES

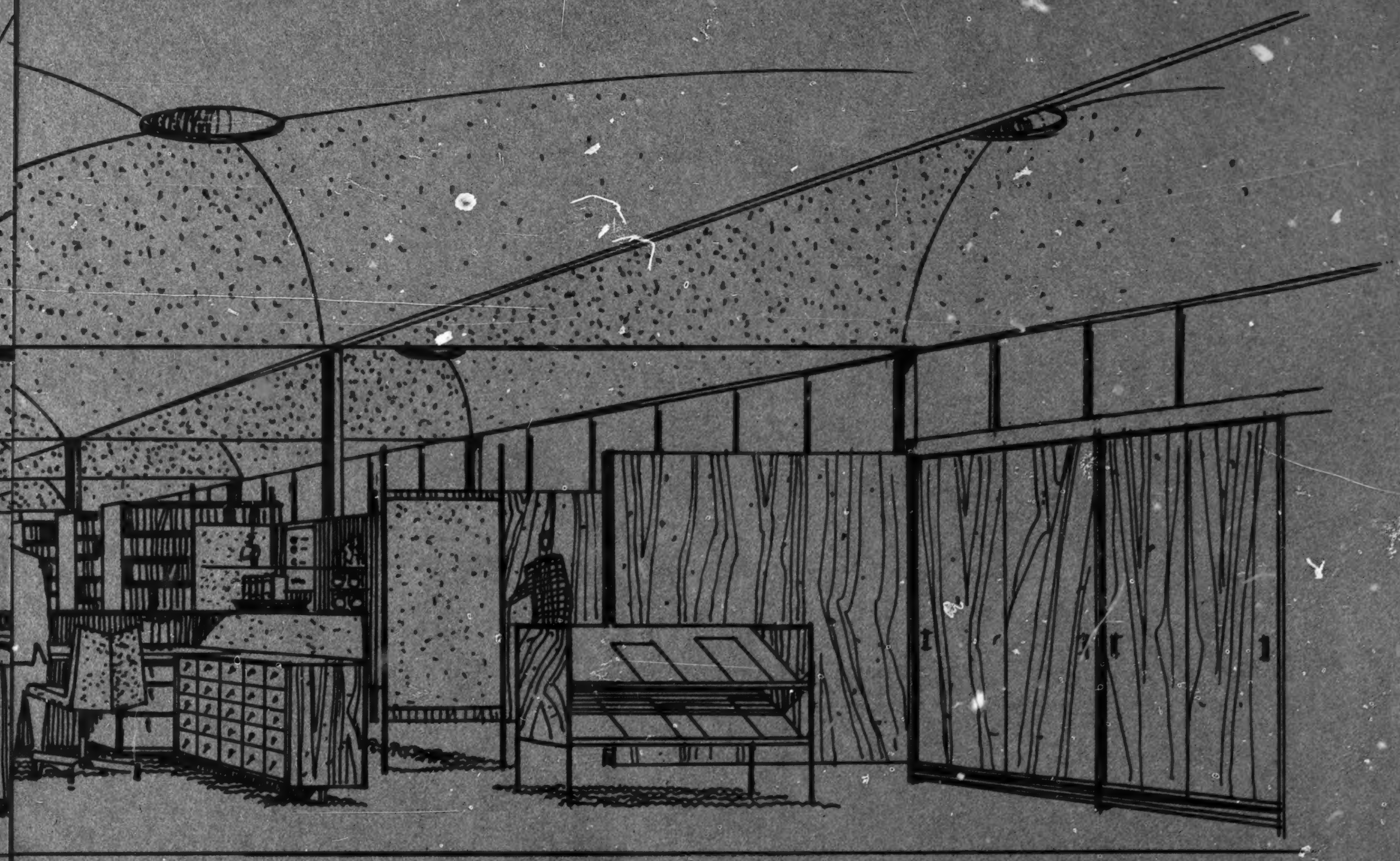


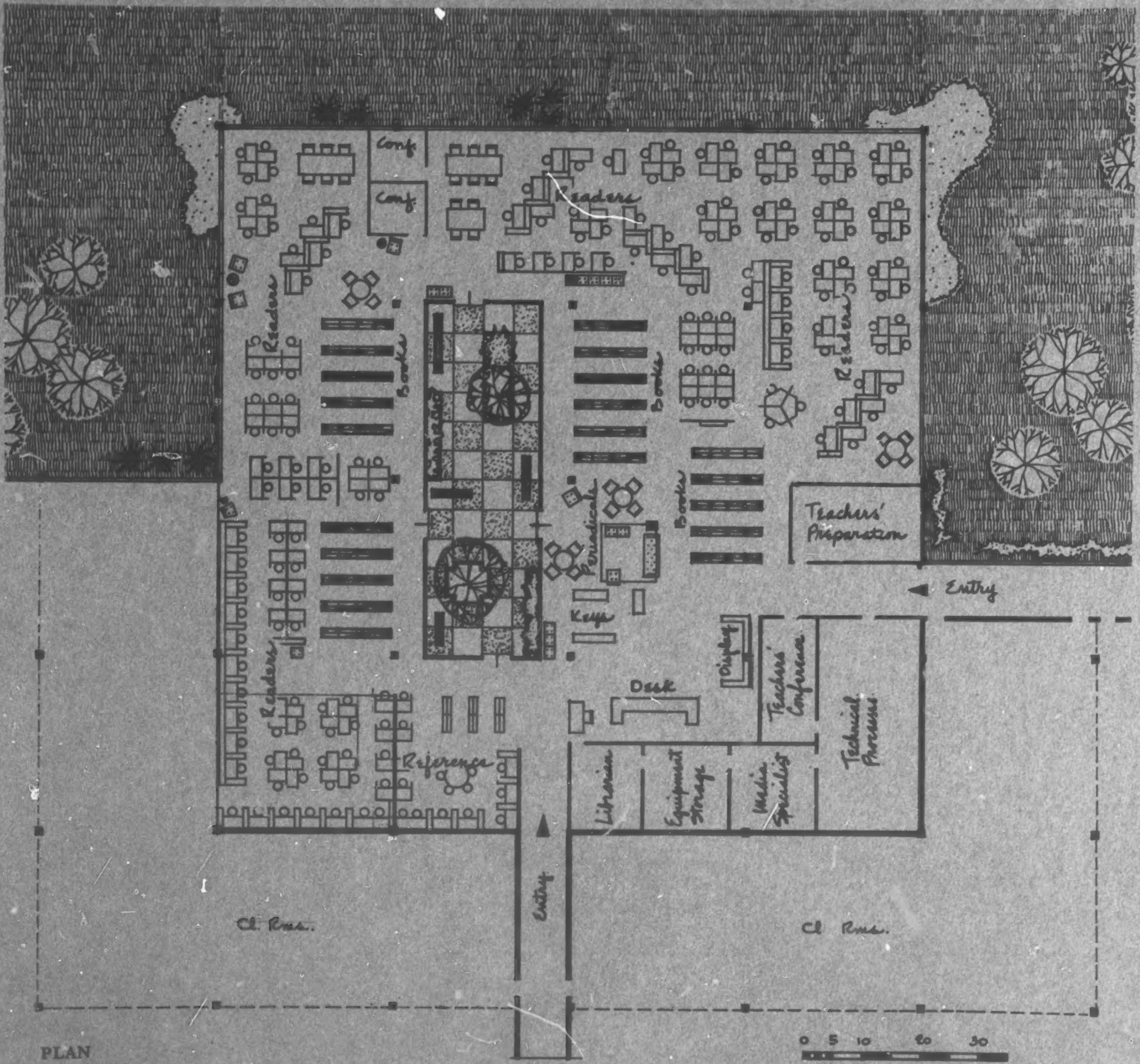
SCHEME 2

The loft plan, with large, open spans uninterrupted by bearing walls, provides maximum flexibility of interior arrangement, is ideal for libraries. Used here in a single-story building with a pleasant inside court, interior areas are kept visually small in scale by movable screens, stacks, and conference rooms. Circulation is nudged around the glass-enclosed court by placement of charge desk and keys on one side, reader spaces and stacks on the other.



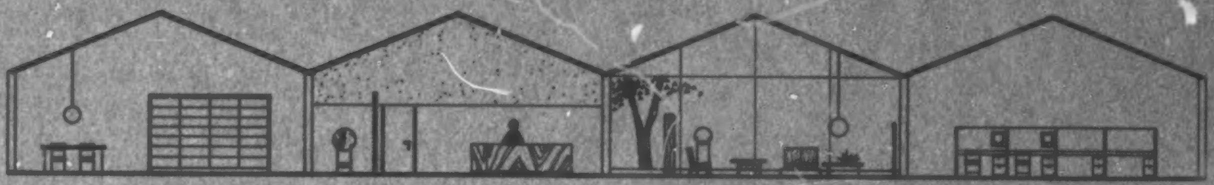
With its repetitive character, the loft plan lends itself to an exciting variety of structural roof shapes. And, as with ladies' hats, the roof will bespeak the wearer. Depending upon the air the library wishes to convey, the loft can be topped with softly rounded shallow domes, soaring arches, or clean geometric angles. Skylights in the roof sections (page 105) provide natural daylight for interior areas not adjacent to outside walls. *(Plan and details, next 2 pages.)*



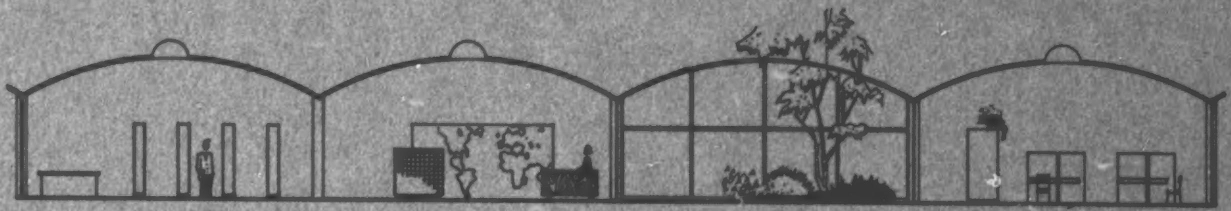

Conf.
Conf.
Readers
Readers
Readers
Readers
Books
Books
Books
Periodicals
Keys
Teachers' Preparation
Entry
Display
Desk
Teachers' Conference
Technical Processes
Reference
Librarian
Equipment Storage
Media Specialist
Entry
Cl. Rms.
Cl. Rms.
0 5 10 20 30

PLAN

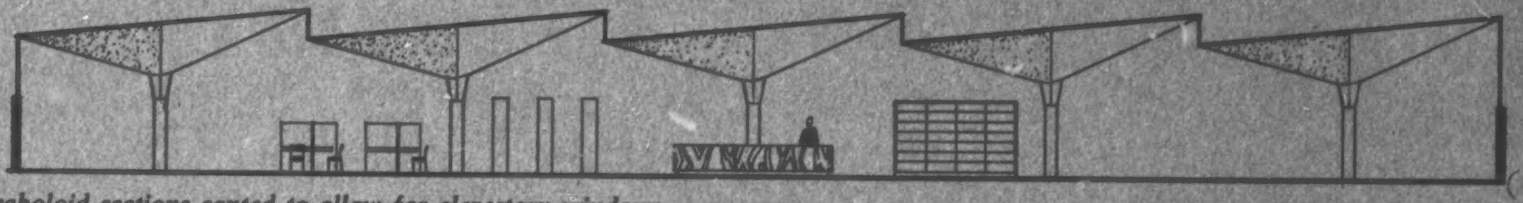
ROOF SUGGESTIONS



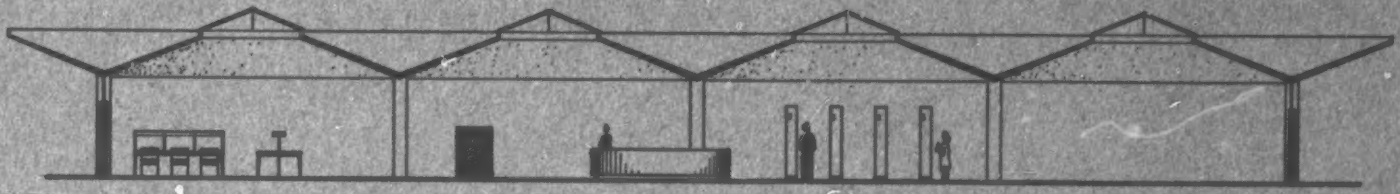
Sawtooth roof shape extending across entire library.



Shallow, dome-shaped roof sections over square base; small skylight in center of each bay.

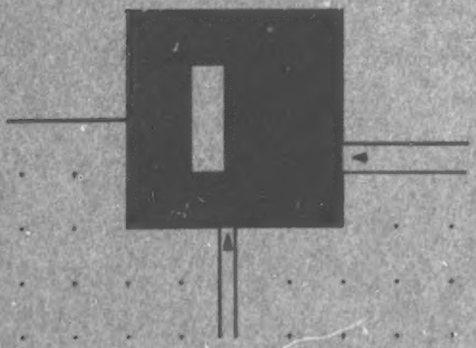


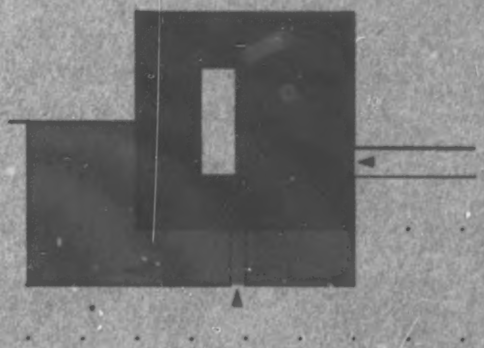
Hyperbolic paraboloid sections canted to allow for clerestory windows.

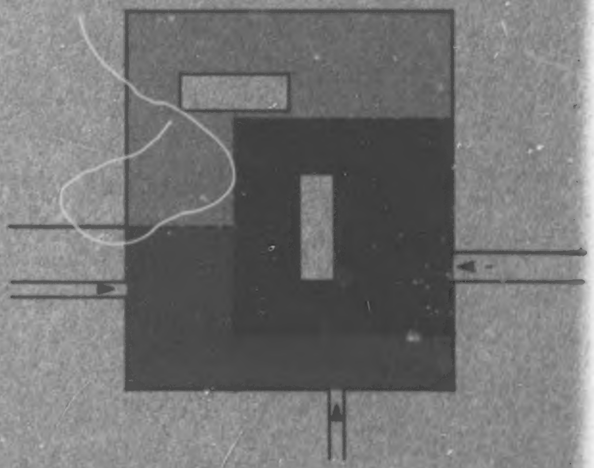


Pyramid-shaped roof sections with pyramid skylight at each vertex in each loft bay.

EXPANSION POSSIBILITIES

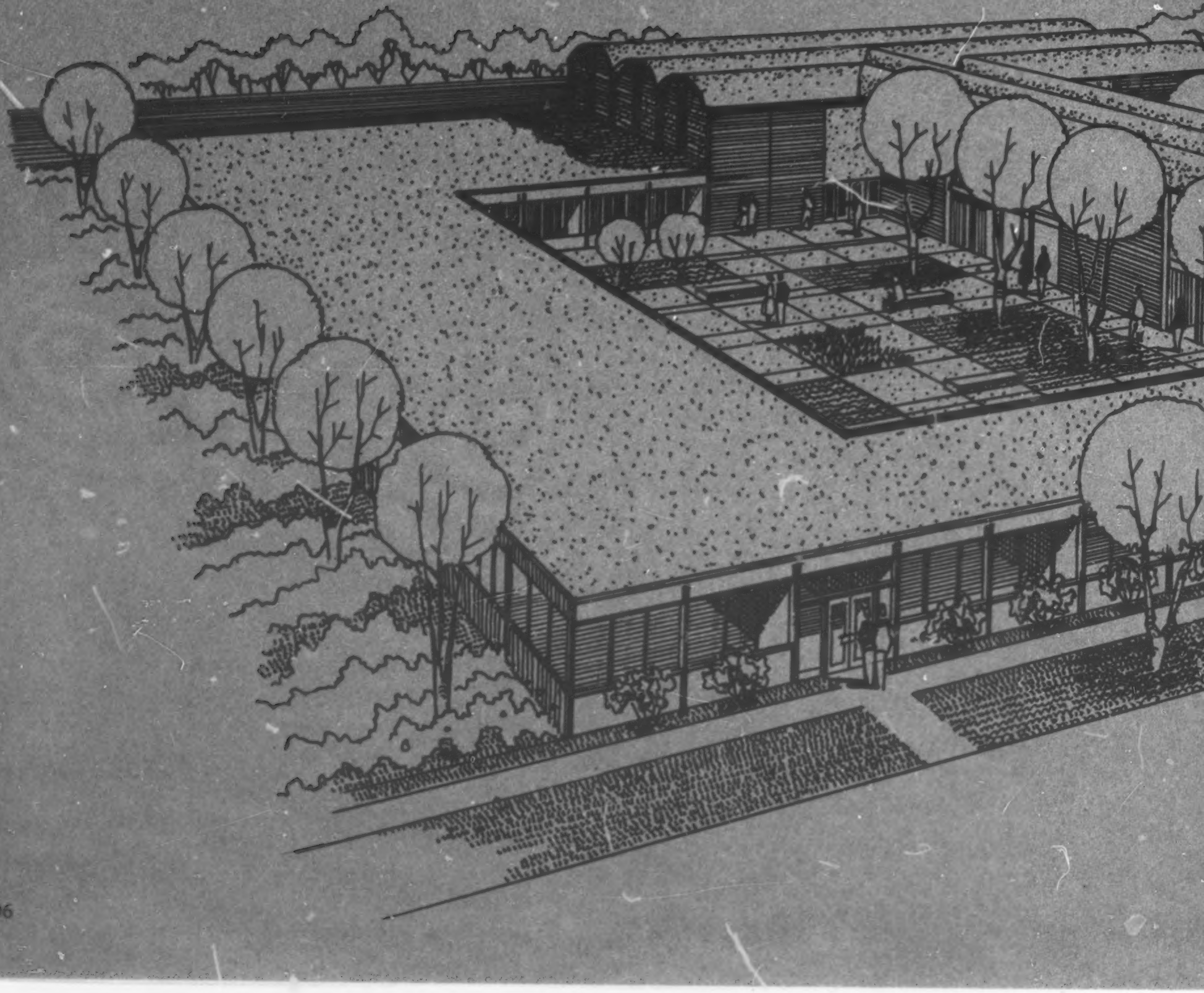


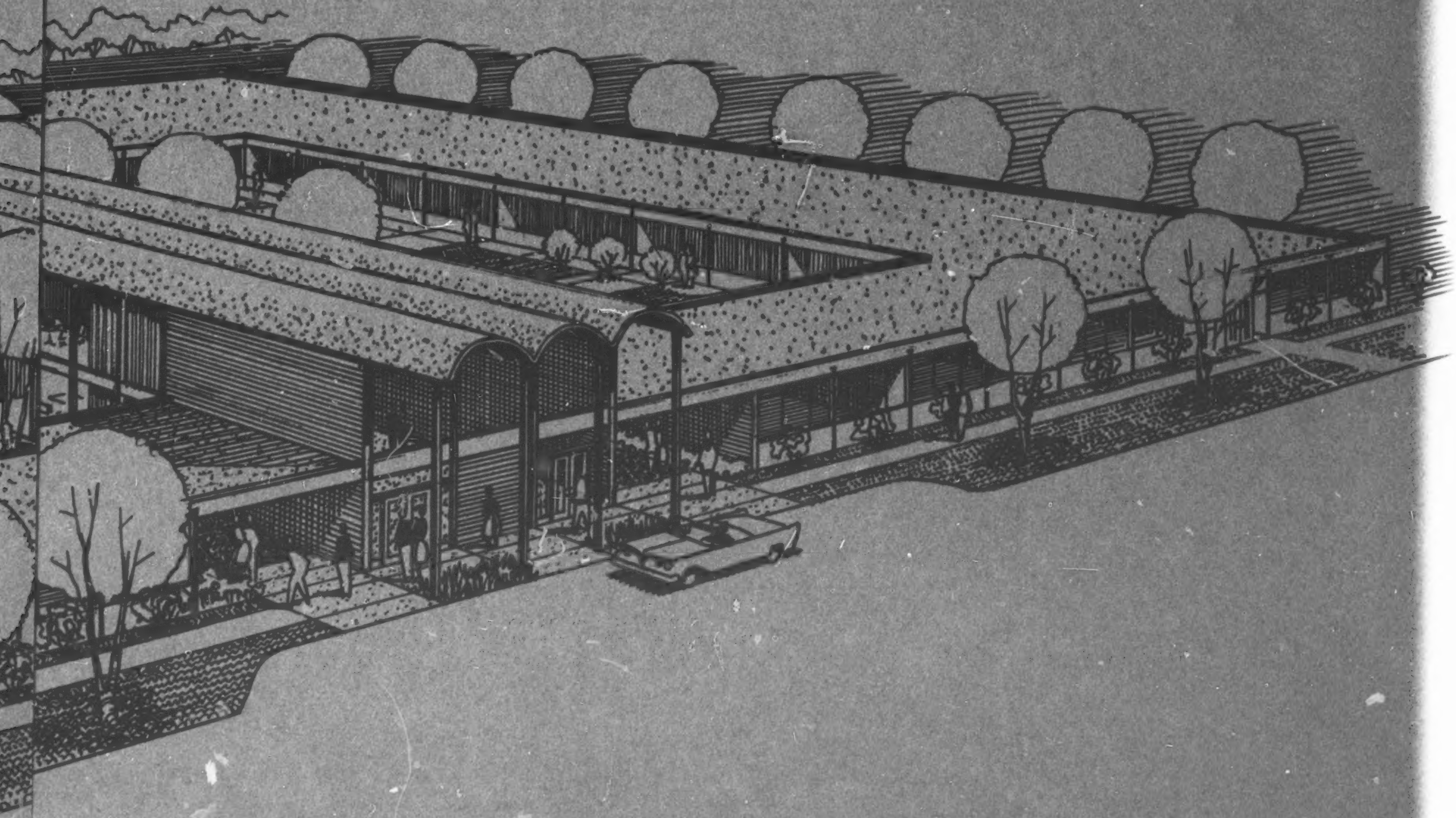


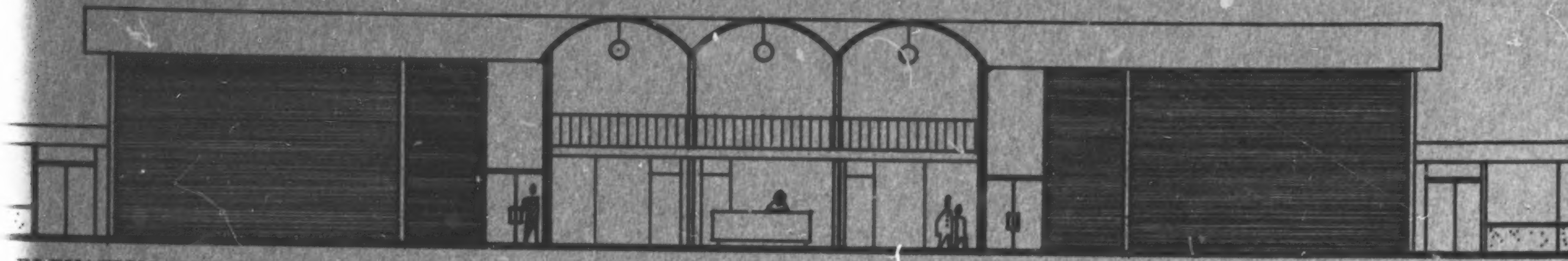


SCHEME 3

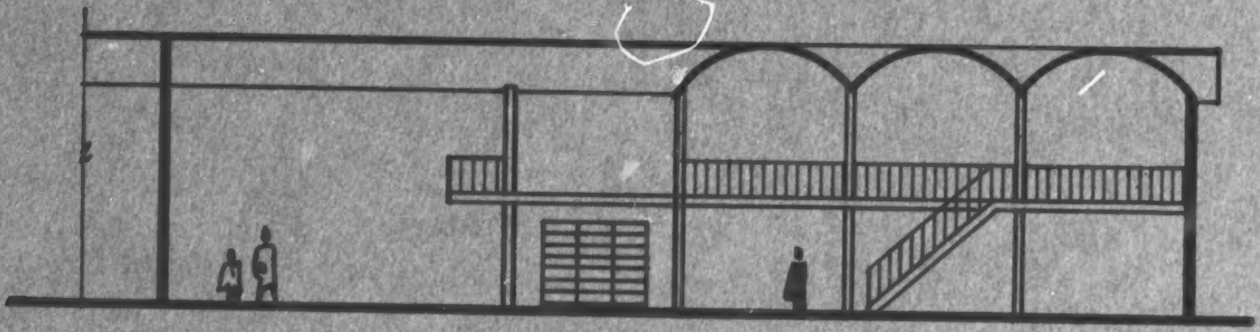
Announcing its importance with a double-story height and barrel vaulted roof, this "T" shaped library bestrides the academic wings of a one-story rectangular plan. The rectangle, hollowed by an open court, is bisected by the "T", symbolically placing the library in the center of the school. The high roof extends over a little theatre at the foot of the "T". After-hour use, by access from the interior courts. *(Plans and details, next 4 pages.)*





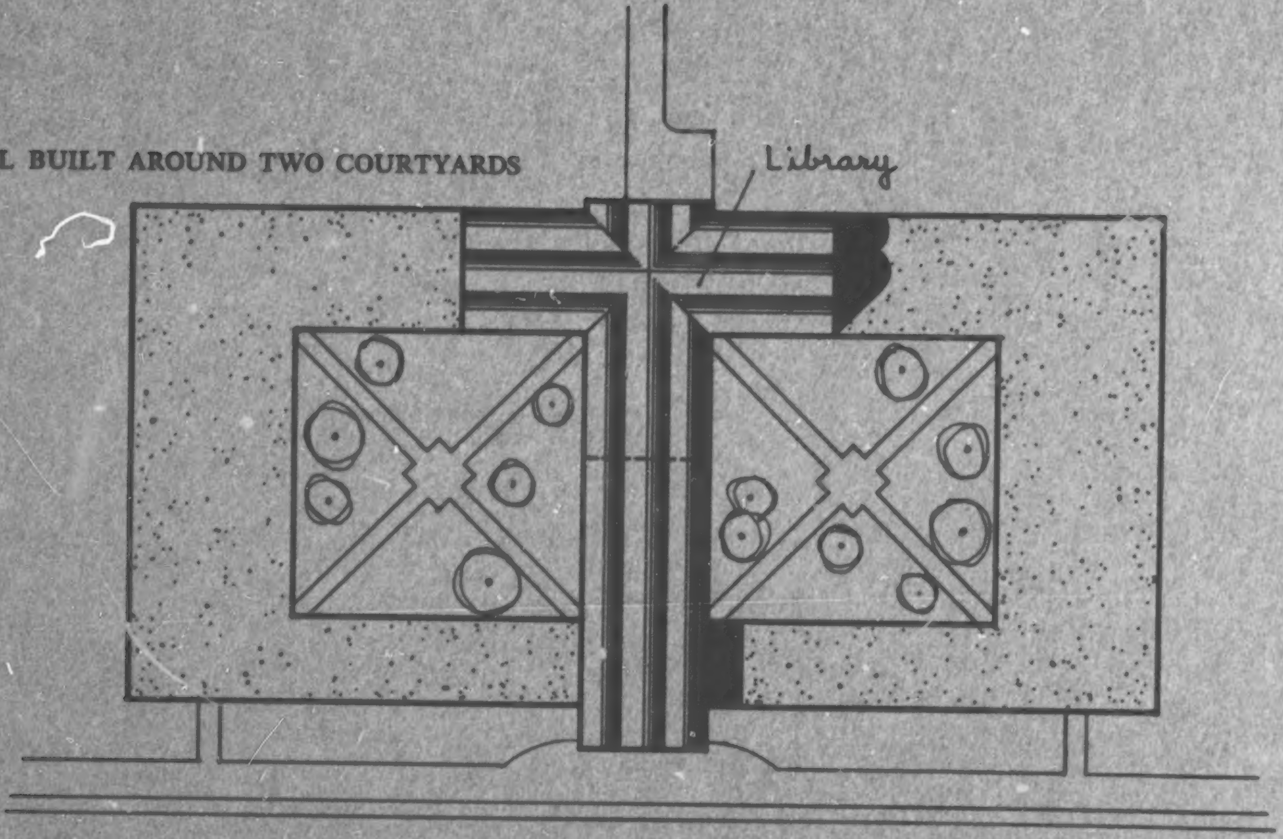


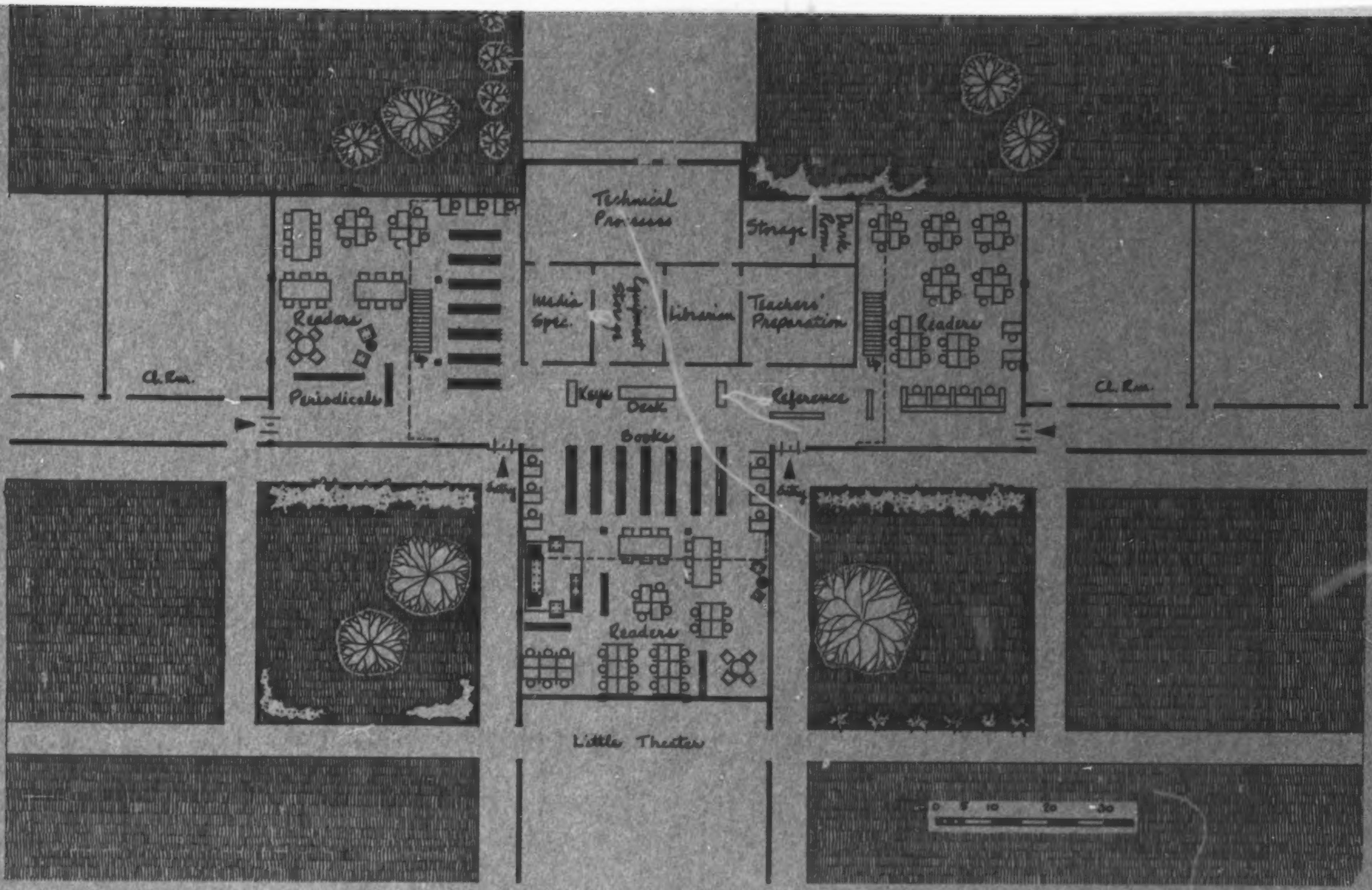
ELEVATION AND SECTION



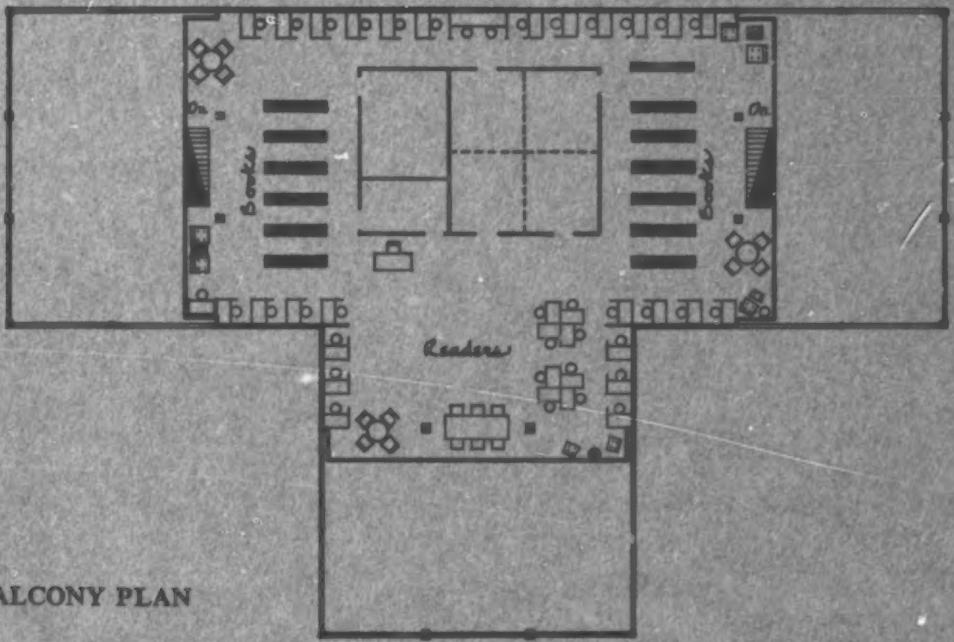
LONGITUDINAL SECTION

ROOF PLAN SHOWS SCHOOL BUILT AROUND TWO COURTYARDS

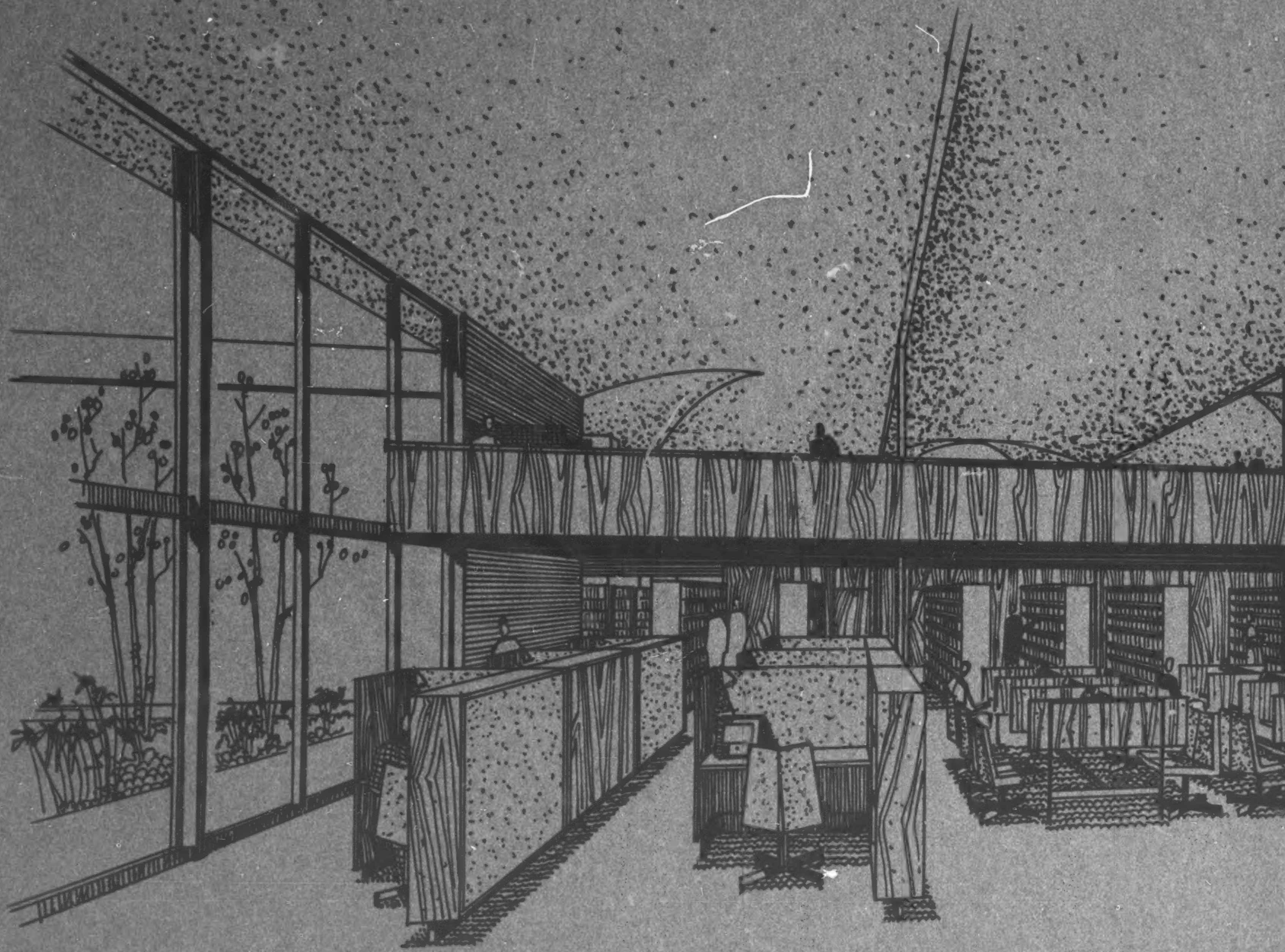



Technical Processes
Storage
Dark Room
Media Spec.
Equipment Storage
Librarian
Teachers' Preparation
Readers
Readers
Cl. Rm.
Cl. Rm.
Periodicals
Keys
Desk
Reference
Books
Entry
Entry
Readers
Little Theater
0 5 10 20 30

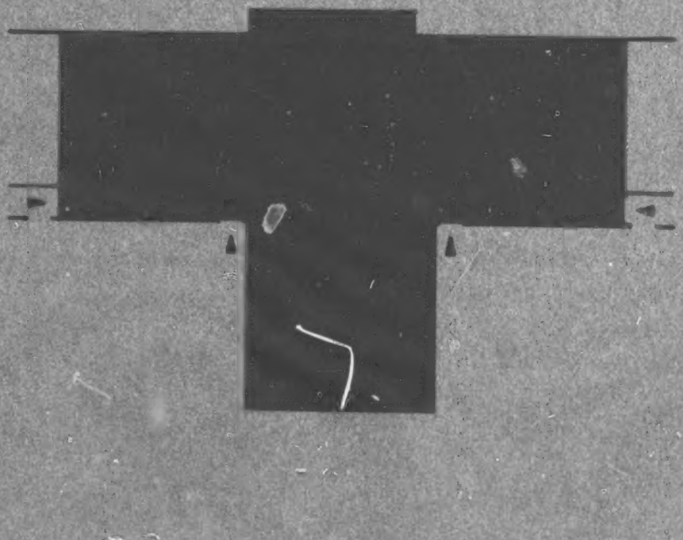
PLAN


Dn.
Dn.
Books
Books
Readers

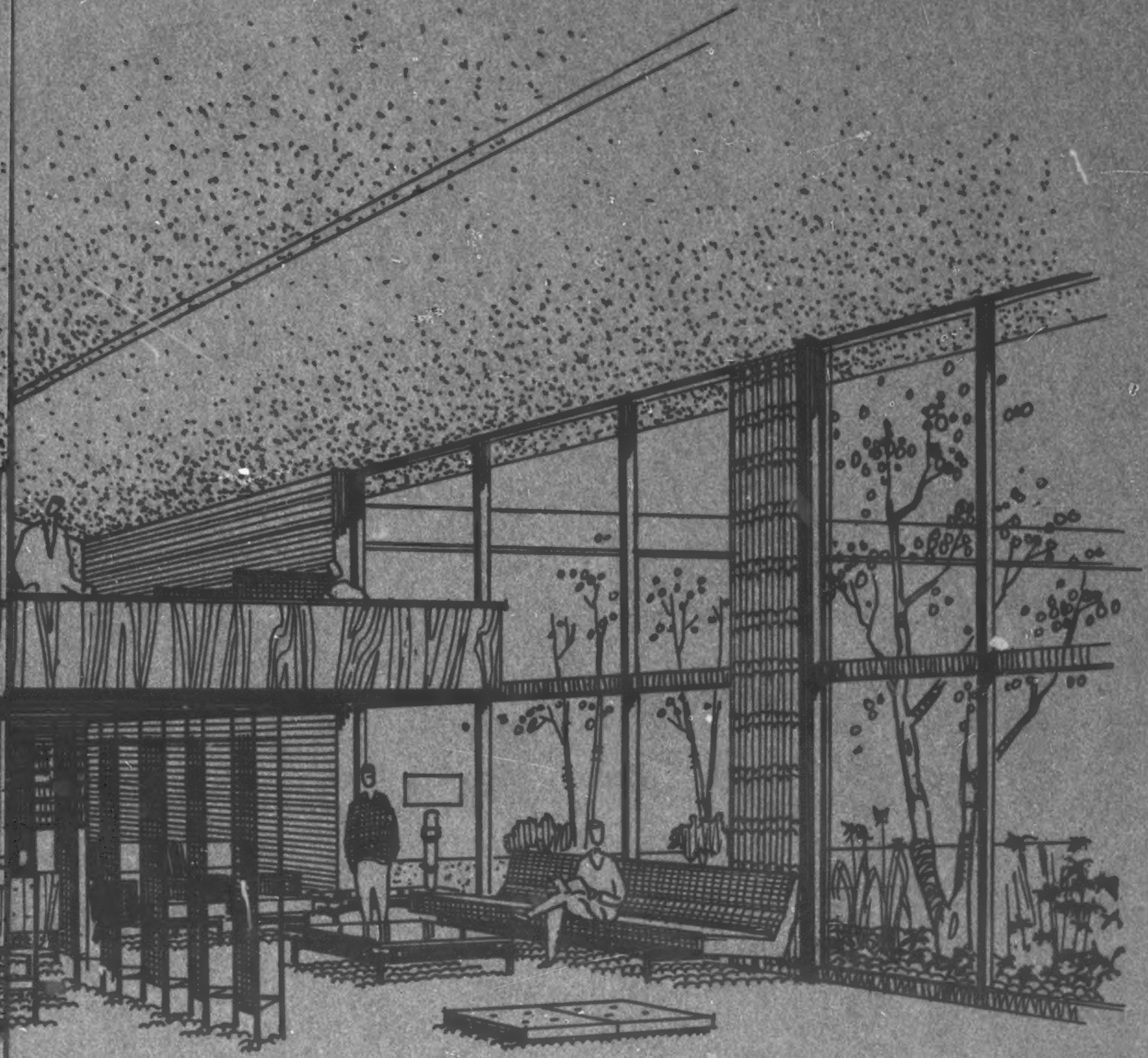
BALCONY PLAN

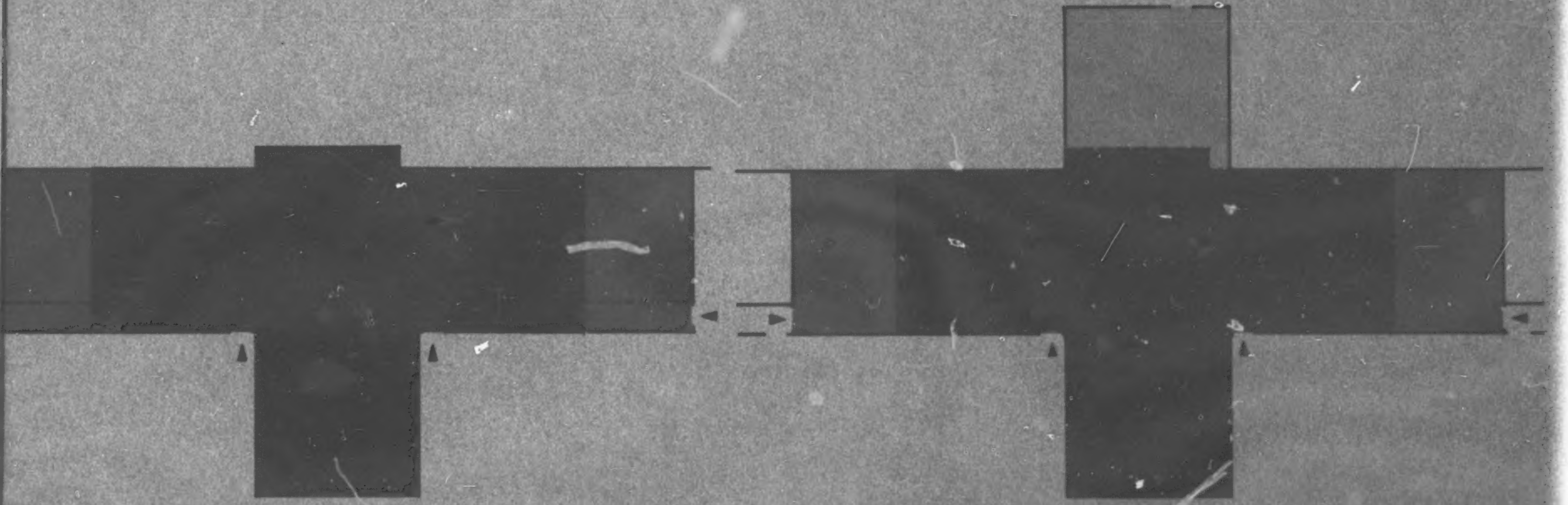


INTERIOR

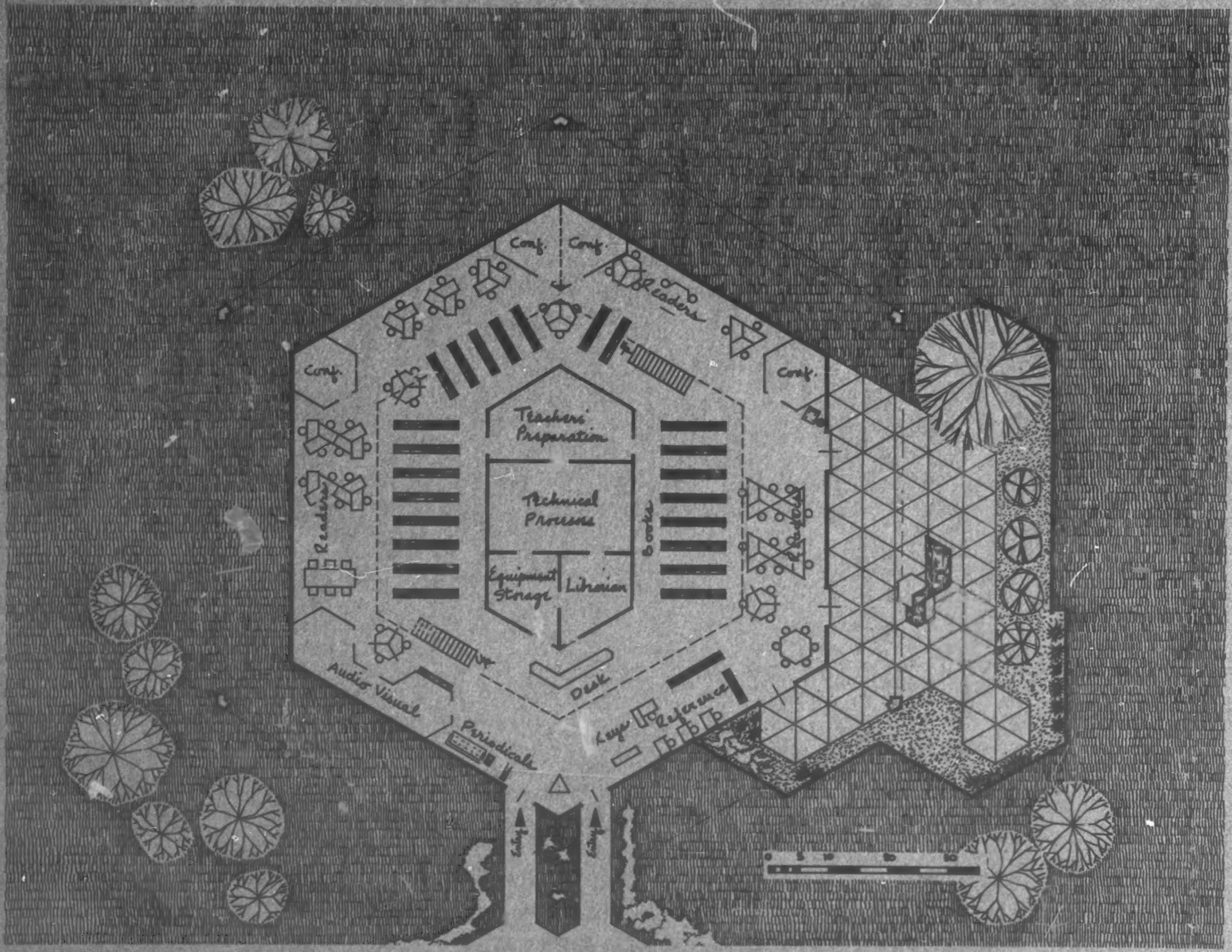


EXPANSION POSSIBILITIES





SCHEME 4


Conf.
Conf.
Readers
Conf.
Conf.
Teachers' Preparation
Technical Processes
Equipment Storage
Librarian
Books
Readers
Readers
Audio Visual
Periodicals
Desk
Keys
Reference
Entry
Entry

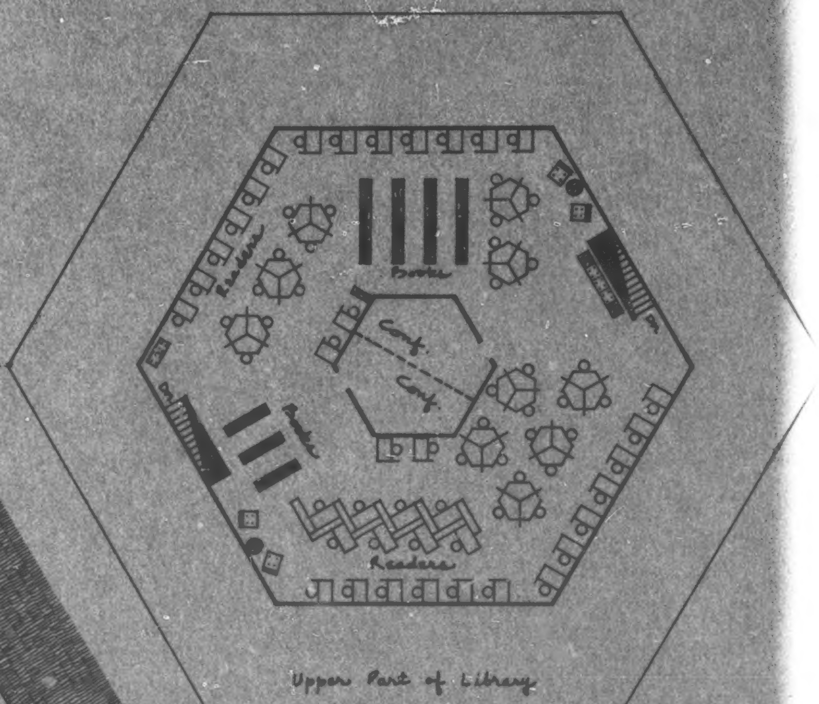
MAIN FLOOR PLAN

Note: This does not lend itself to easy enlargement, is not appropriate where much expansion is anticipated. See facing page for variation on hexagonal plan that permits limited growth.

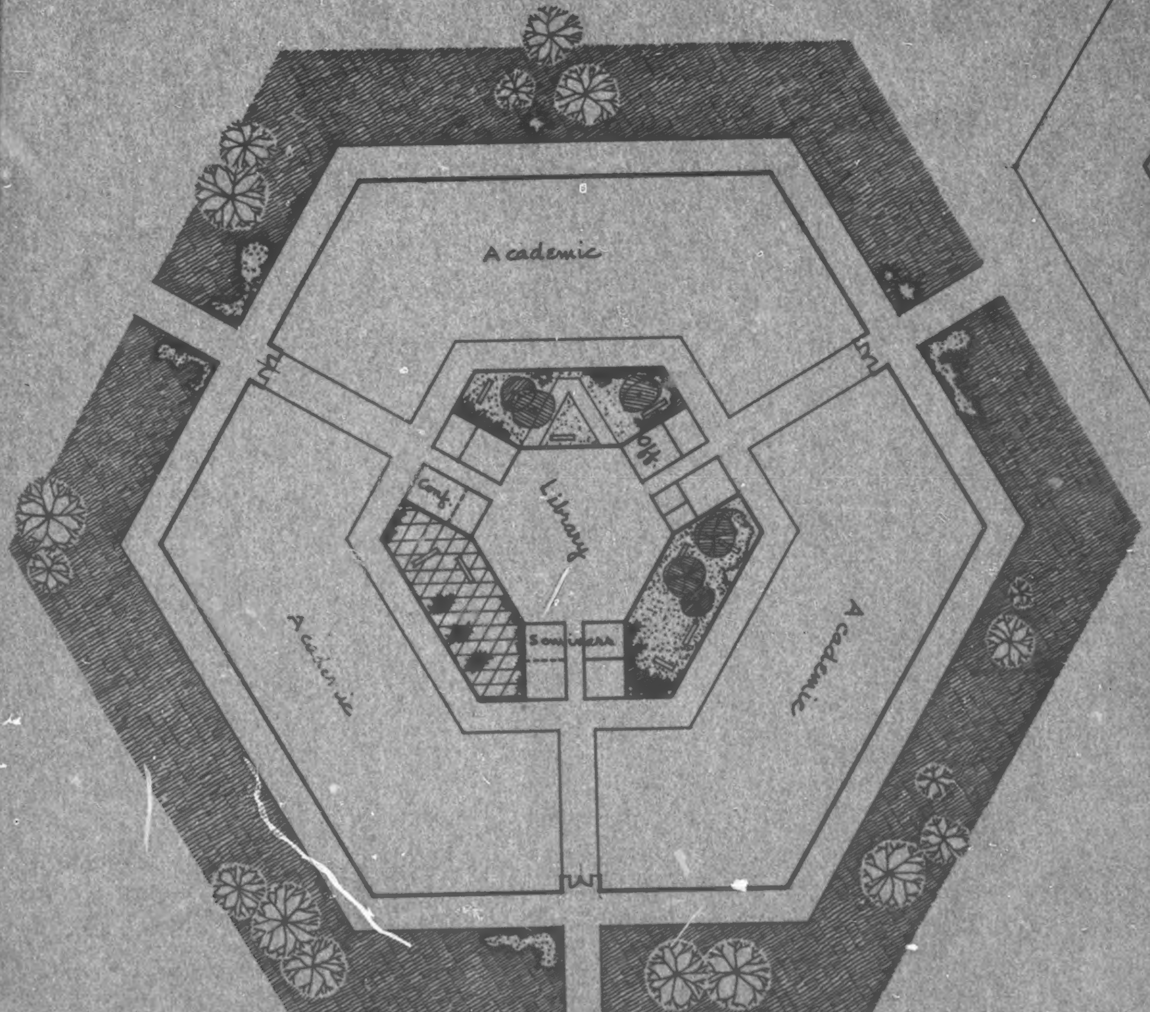
Hexagons, a pleasing change of pace for the eye, are highly functional, too. Here, the hexagonal layout creates natural separations of function and traffic flow, virtually eliminating the need for interior walls. The shape itself routes students from keys to materials to reader tables to group study rooms on the periphery. The internal space suggests arrangements of carrel clusters based upon standard, commercially available trapezoidal tables.

Site plans (page 114) show how placement of hexagonal library can signify its eminence in the school program: (a) as the hub of a building surrounded by academic areas; (b) as the core building of a building complex; (c) as a separate building connected by corridor to an academic block. Convenient after-hour use is possible in all.

Enclosures for the hexagon (page 115) offer a wide choice of graceful contours that can be sculpted from concrete, steel, or wood. In those shown here, the higher ceiling height in the center of the conoidal forms permits a balcony. *(Details, next 2 pages.)*

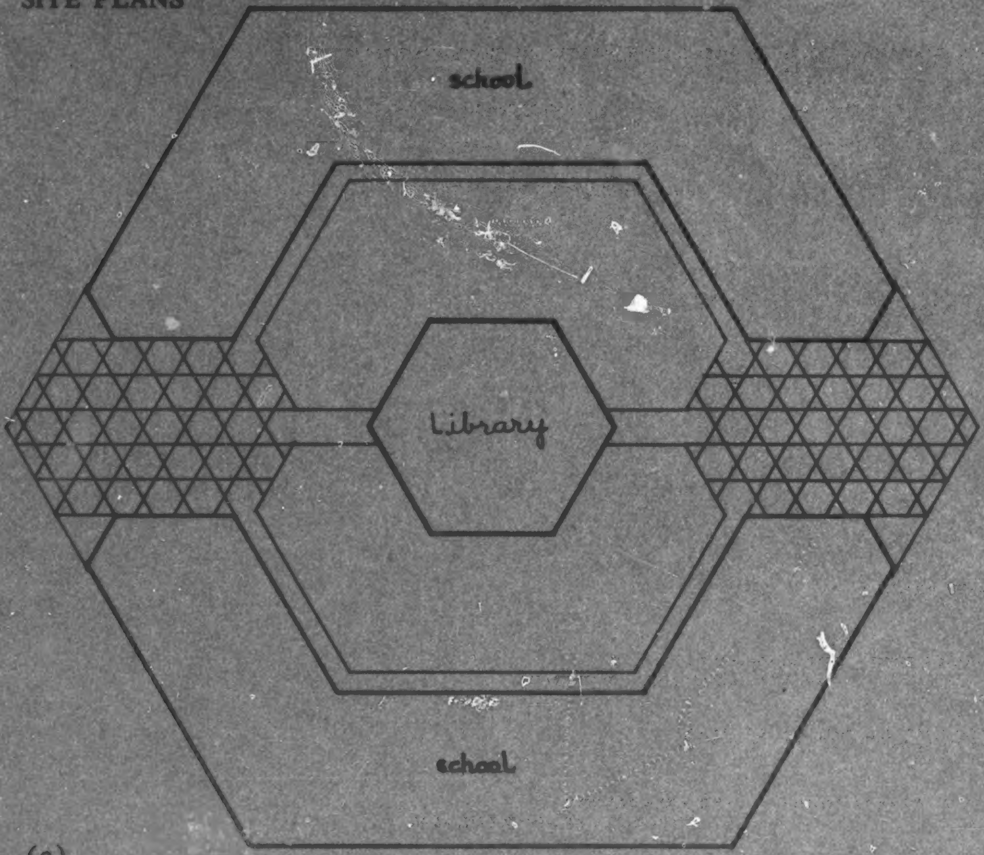


BALCONY PLAN

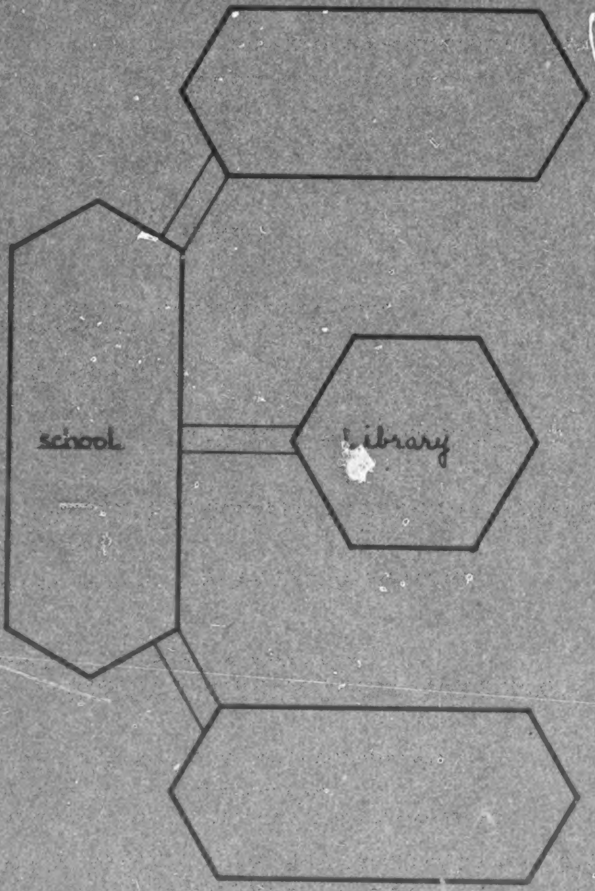


Library can expand into office, seminar, and conference room areas.

SITE PLANS

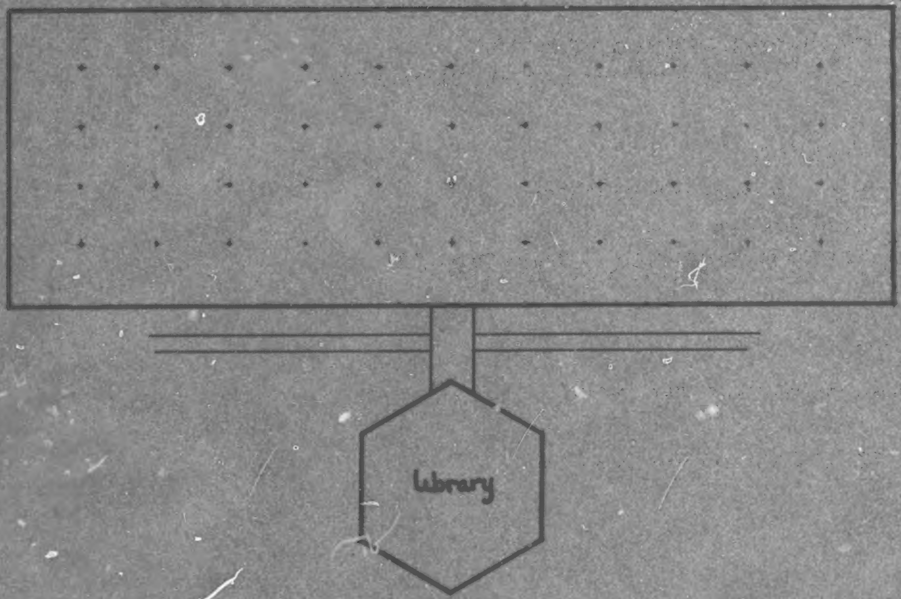

school
Library
school

(a)


school
Library

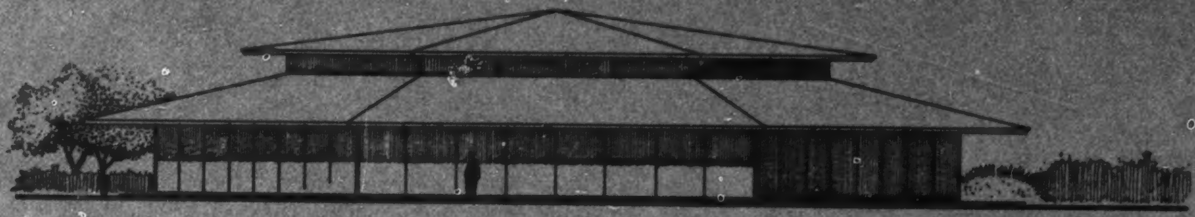
(b)

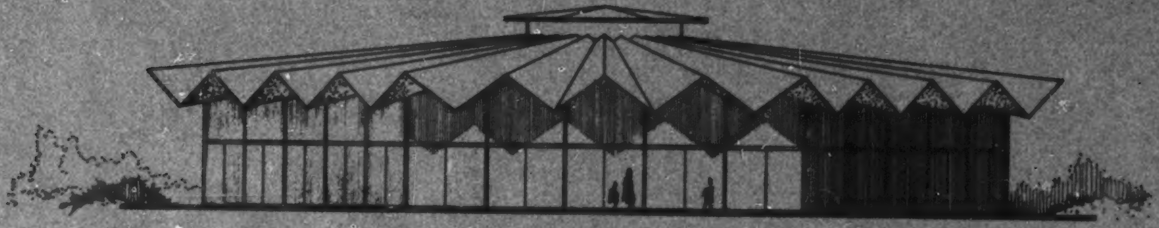
(c)

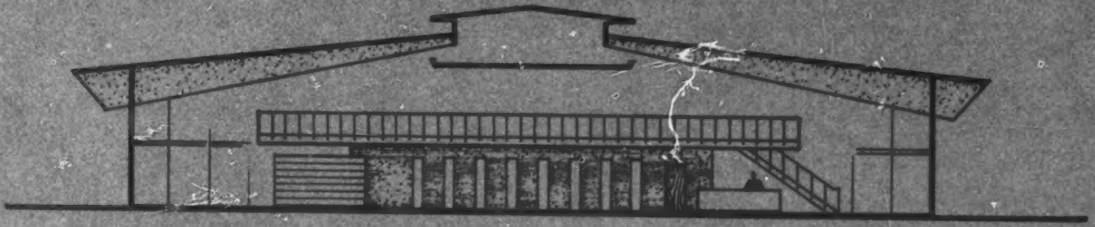


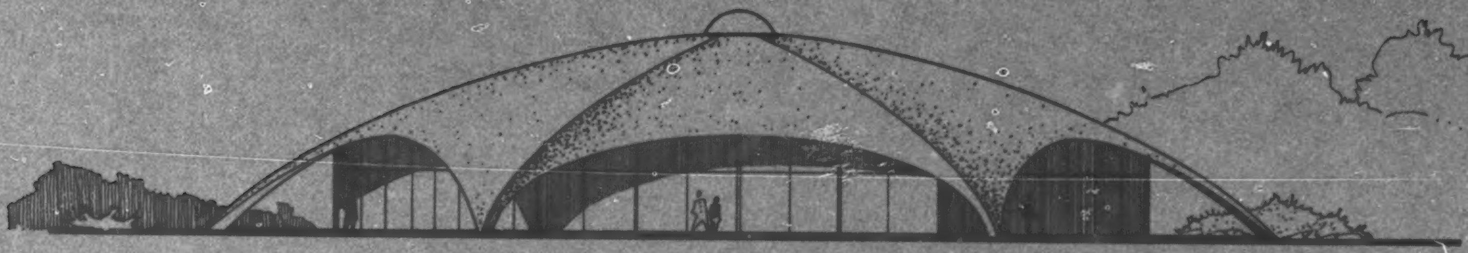
(right) (1) Clerestory windows under upper roof admit natural lighting to balcony area; (2, 3,) Folded plate roof design; can be constructed in concrete, steel, or wood (mechanical, ventilating, and exhaust equipment may be placed under raised center section of roof, over balcony); (4) Barrel-shaped shell concrete roof; (5) Fluted dome-shaped roof; (6) Sculpted shape in concrete.

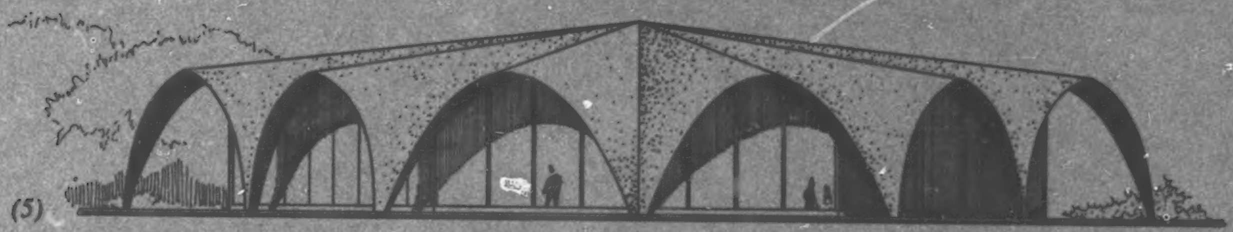
ROOF SUGGESTIONS

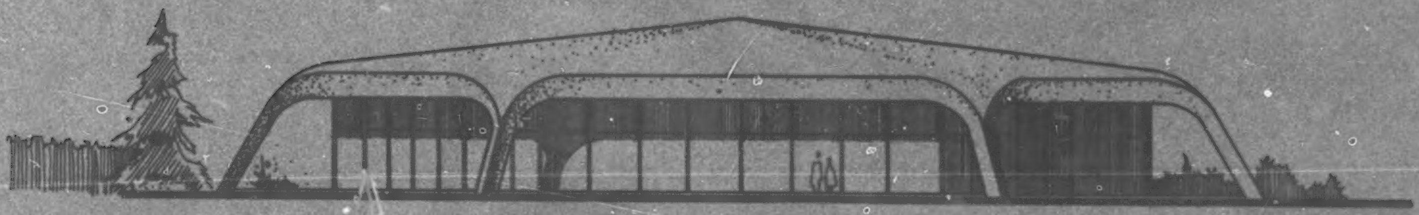

(1)


(2)


(3)

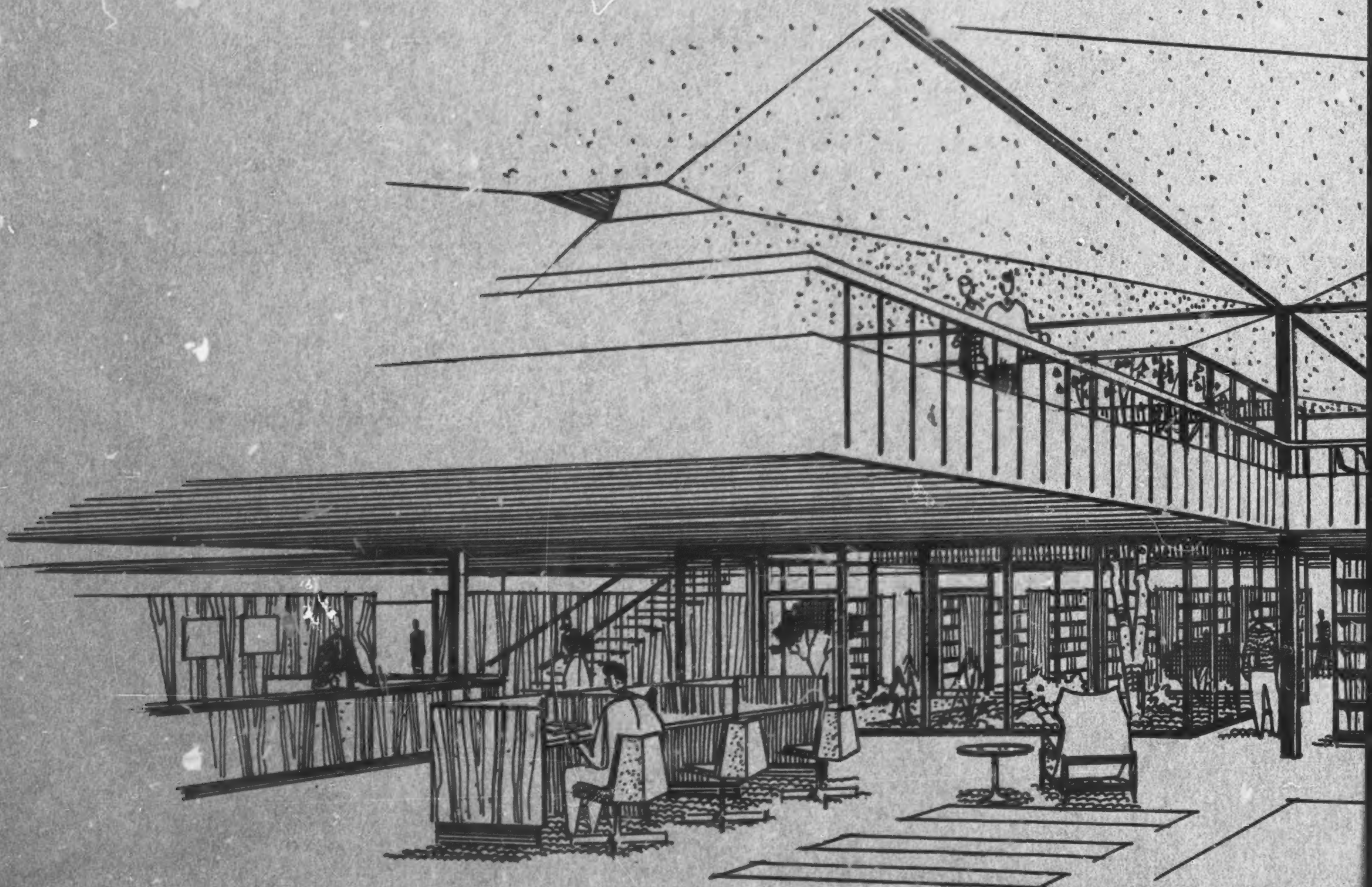

(4)

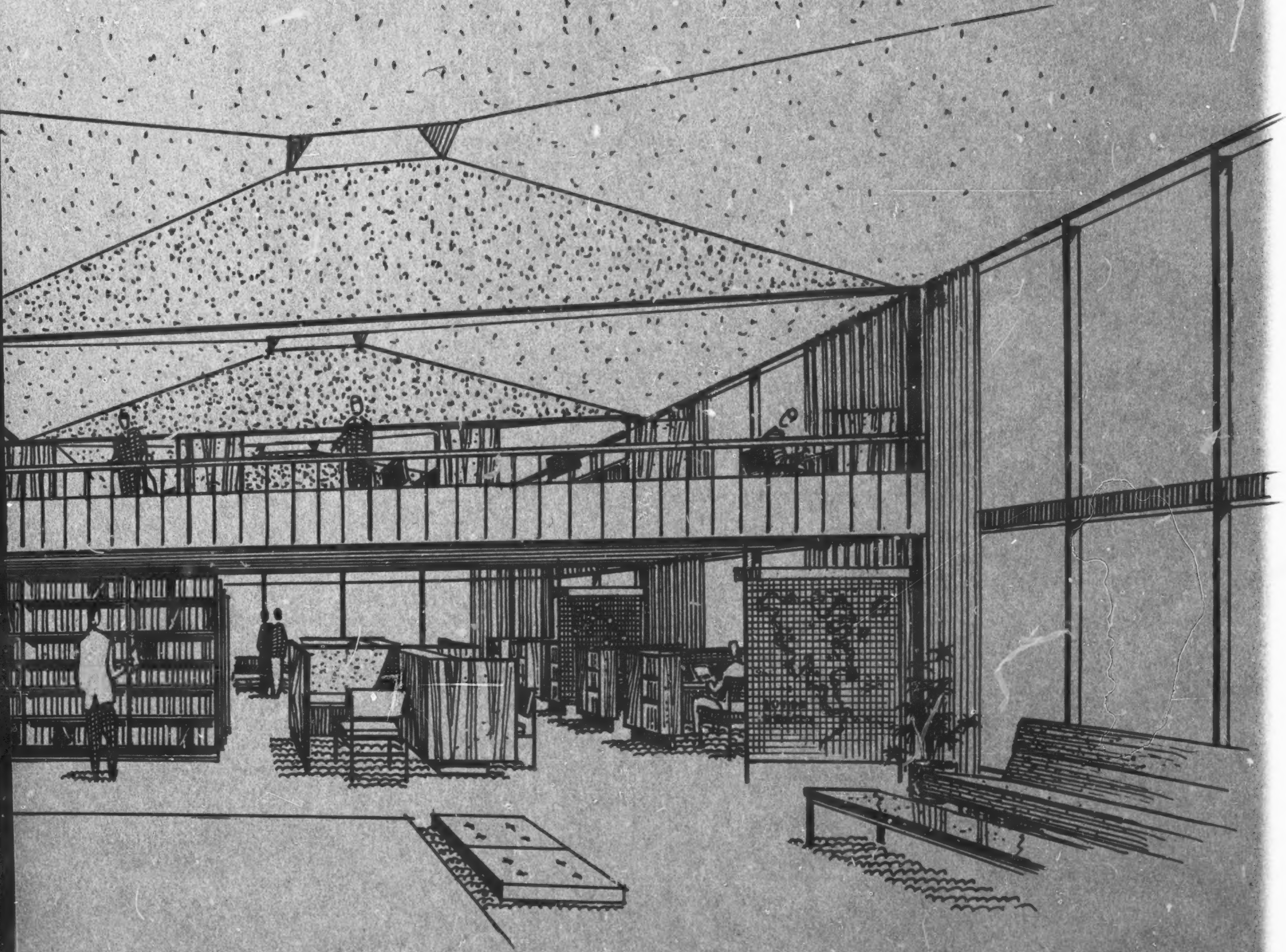

(5)

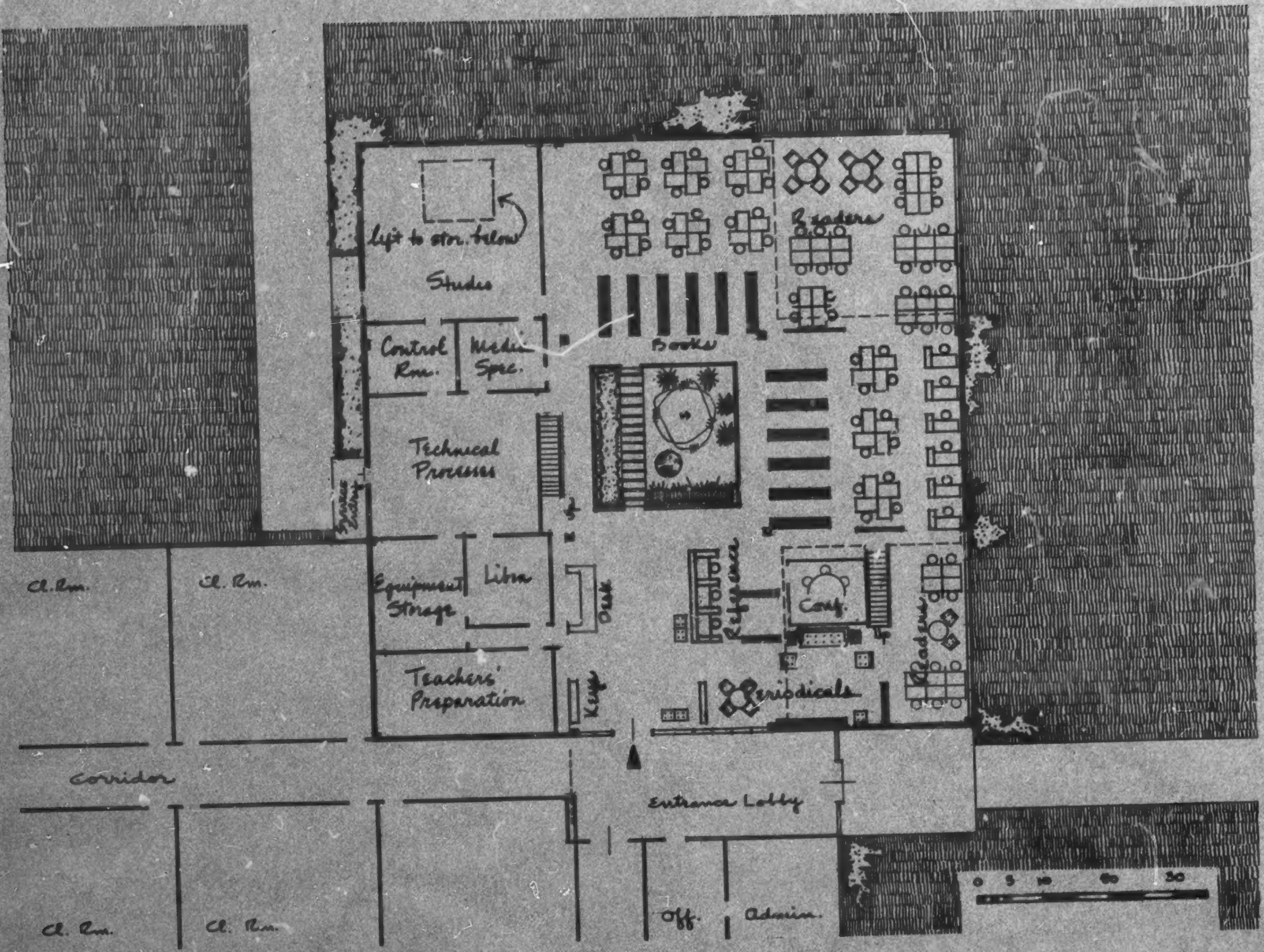

(6)

SCHEME 5

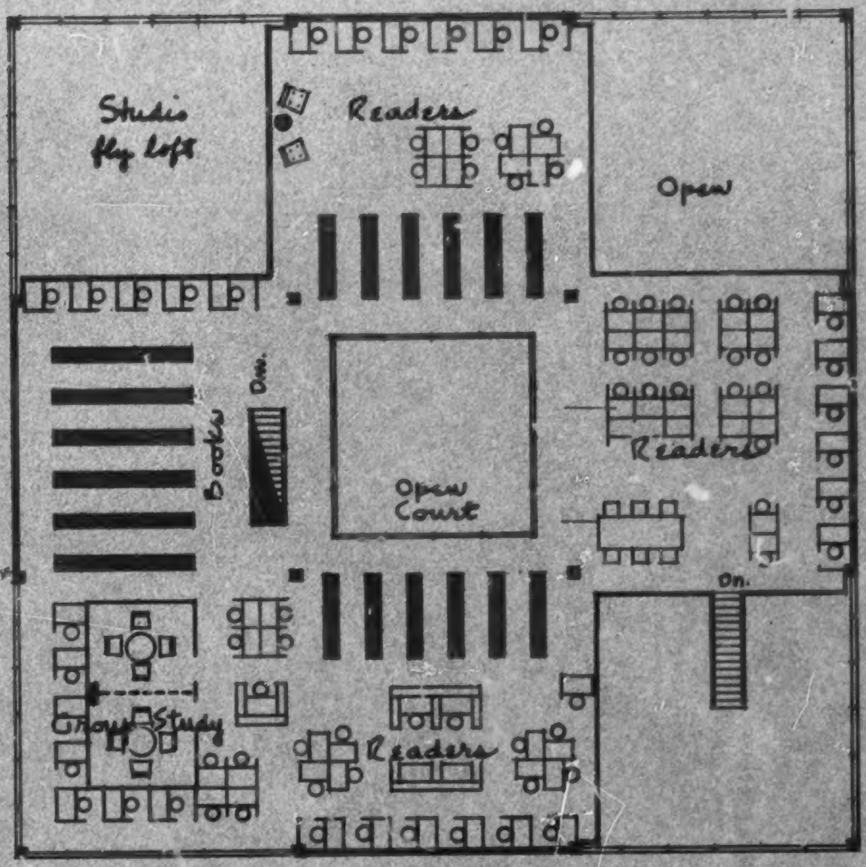
A two-story courtyard cuts a vertical swathe through the dead center of this symmetrical loft plan, sweeping the outdoors into the middle of the library. Thrusting through the upper level, the courtyard graces the balcony as well. Circulation is concentrated in the middle of the plan, around the glass-enclosed court. Wells in open corners of the modified cross-shaped balcony contrast with the dropped ceiling height under the balcony itself to add spatial texture. Planes of the pyramidal roof bays, with skylights at the vertex of each pyramid, cast pleasant values of light and shadow. *(Plans and details, next 2 pages.)*

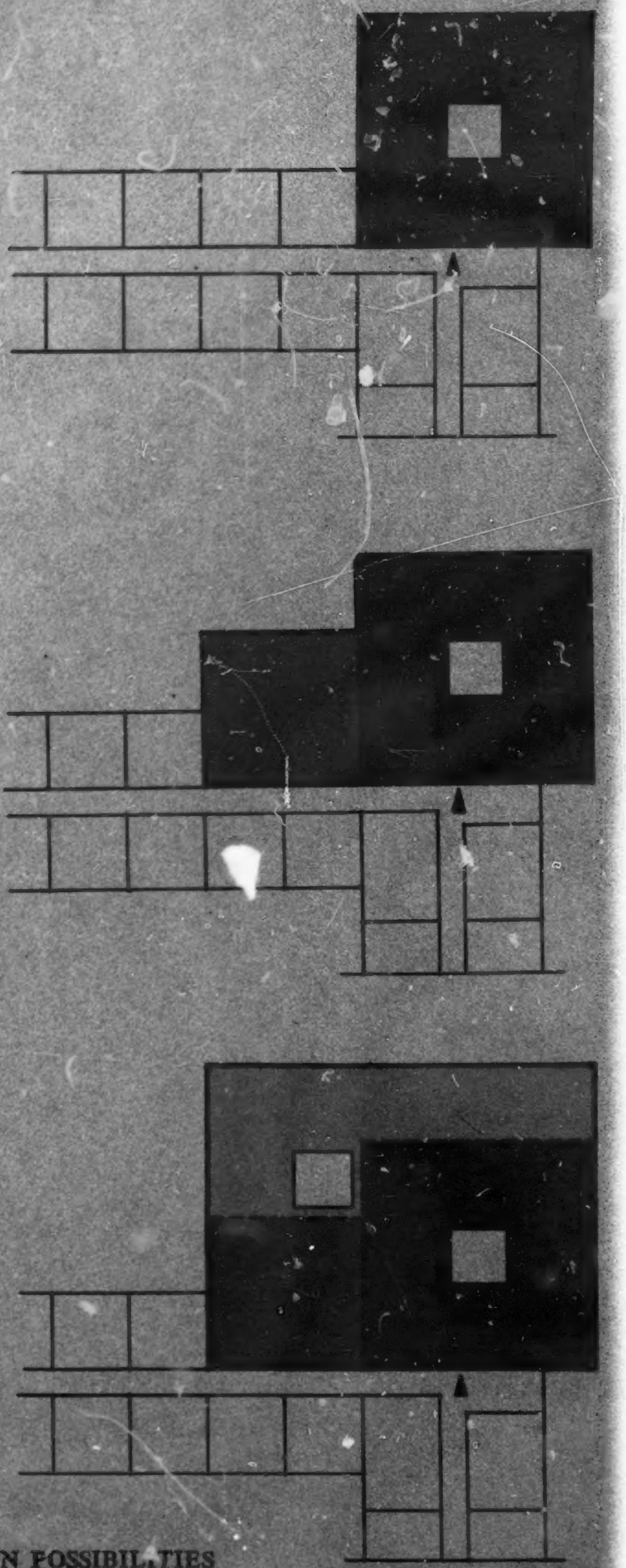





lift to stor. below
Studio
Control Rm.
Media Spec.
Books
Readers
Technical Processes
Storage Lobby
Equipment Storage
Libn
Desk
Reference
Conf.
Readers
Periodicals
Teachers' Preparation
Keys
Cl. Rm.
Cl. Rm.
Corridor
Entrance Lobby
Cl. Rm.
Cl. Rm.
Off.
Admin.
0 5 10 20 30

MAIN FLOOR PLAN


Studio fly loft
Readers
Open
Books
Dn.
Open Court
Readers
Dn.
Group Study
Readers

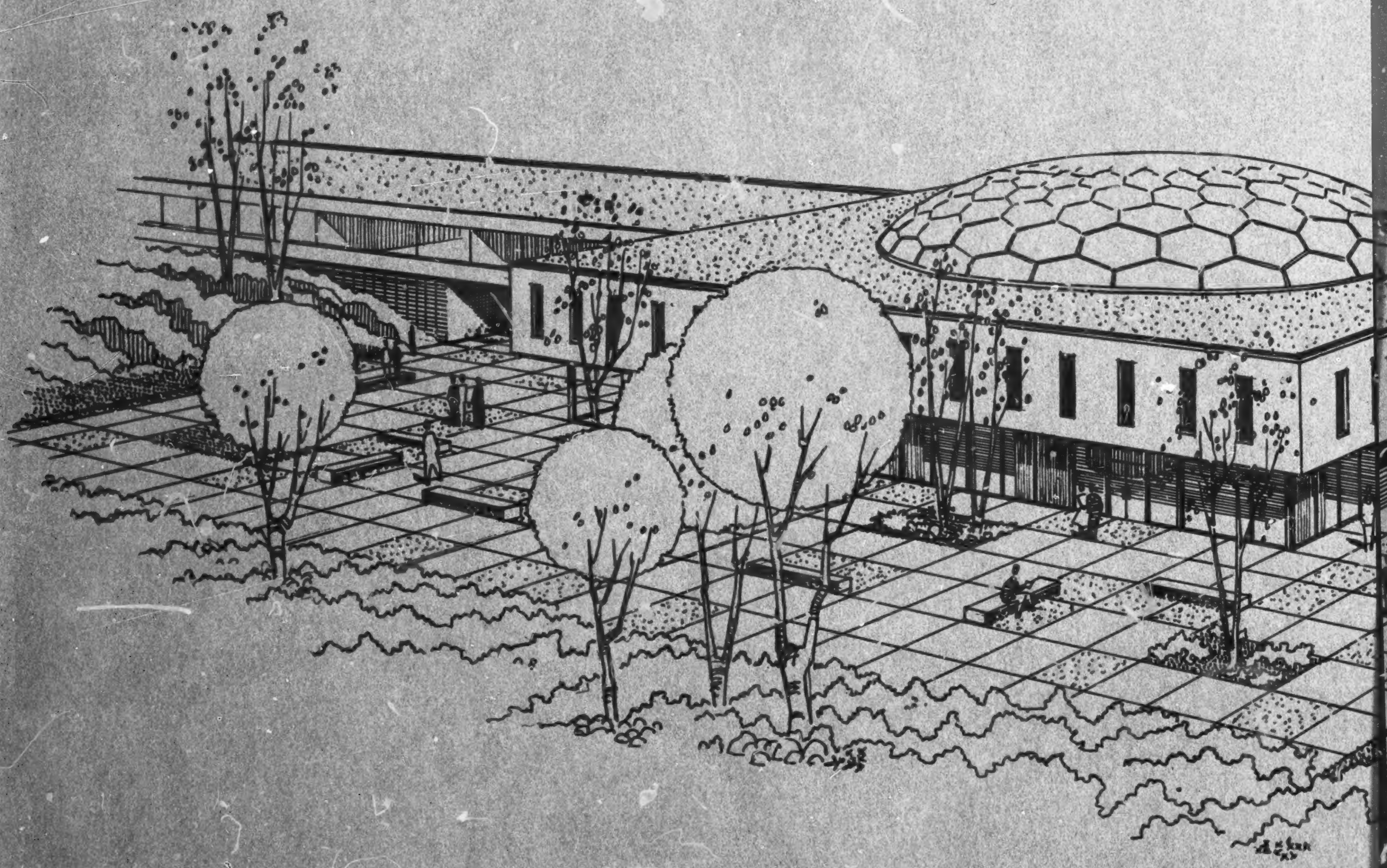


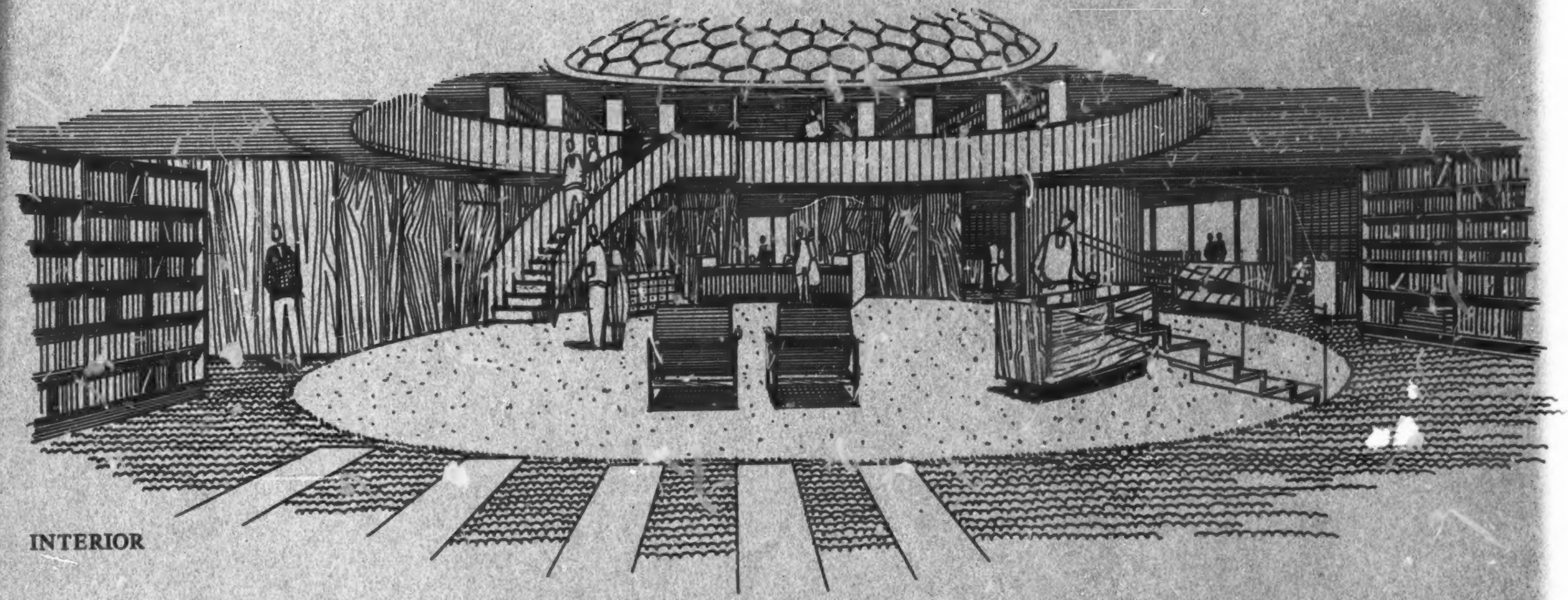
EXPANSION POSSIBILITIES

SCHEME 6

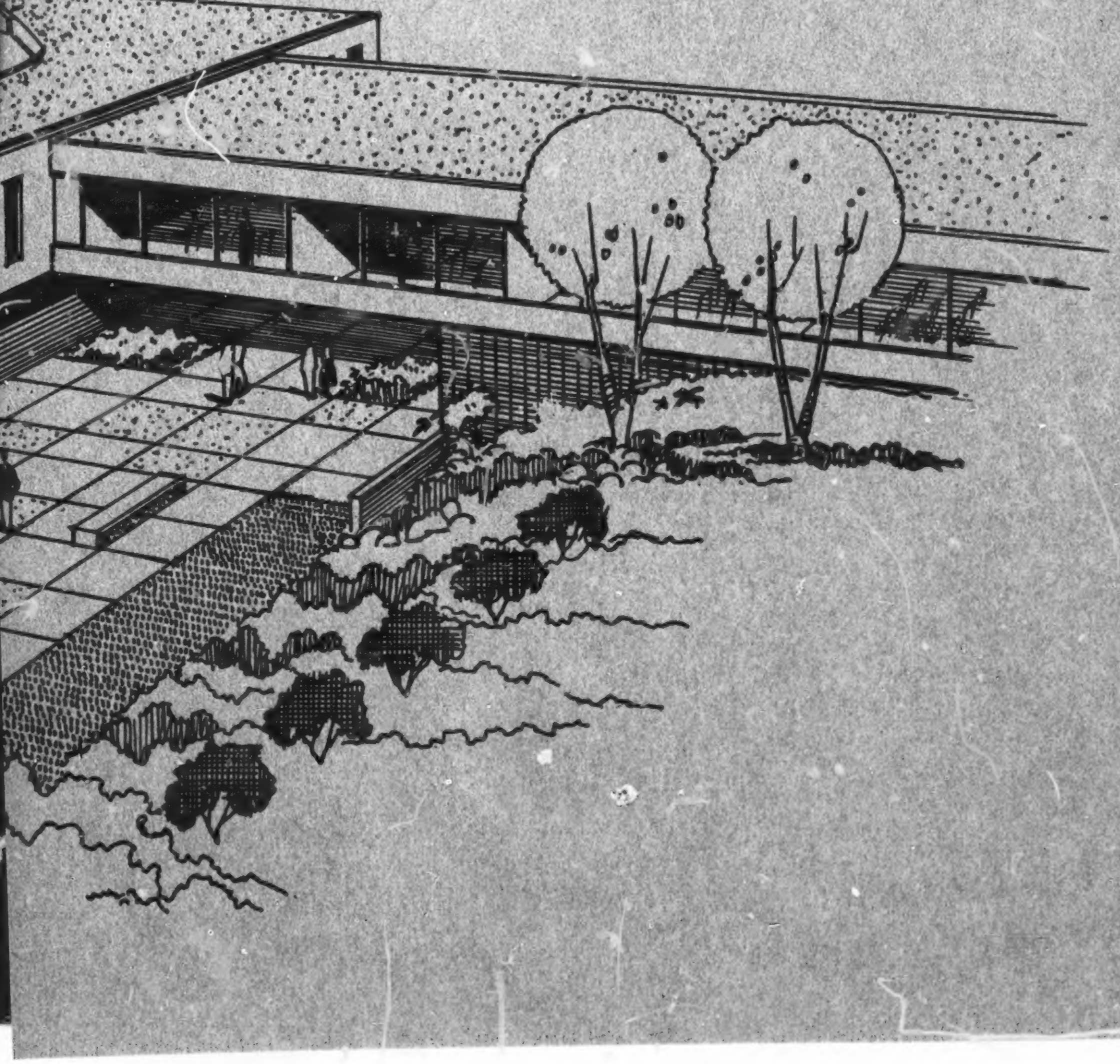
Dramatically holding sway as the heart of the school, a skylight dome caps a two-level sunken library. Library's upper level is on same floor as the school itself, located where students must circle it to get from one academic wing of the building to another. Its reader areas can also serve adjacent classrooms. (See plan, page 123.) Interior view shows how the round skylight, for diffused overhead lighting, rythmically repeats the large circular opening between floors. Students look down through opening while passing between classes, see others at work on library's main floor below.

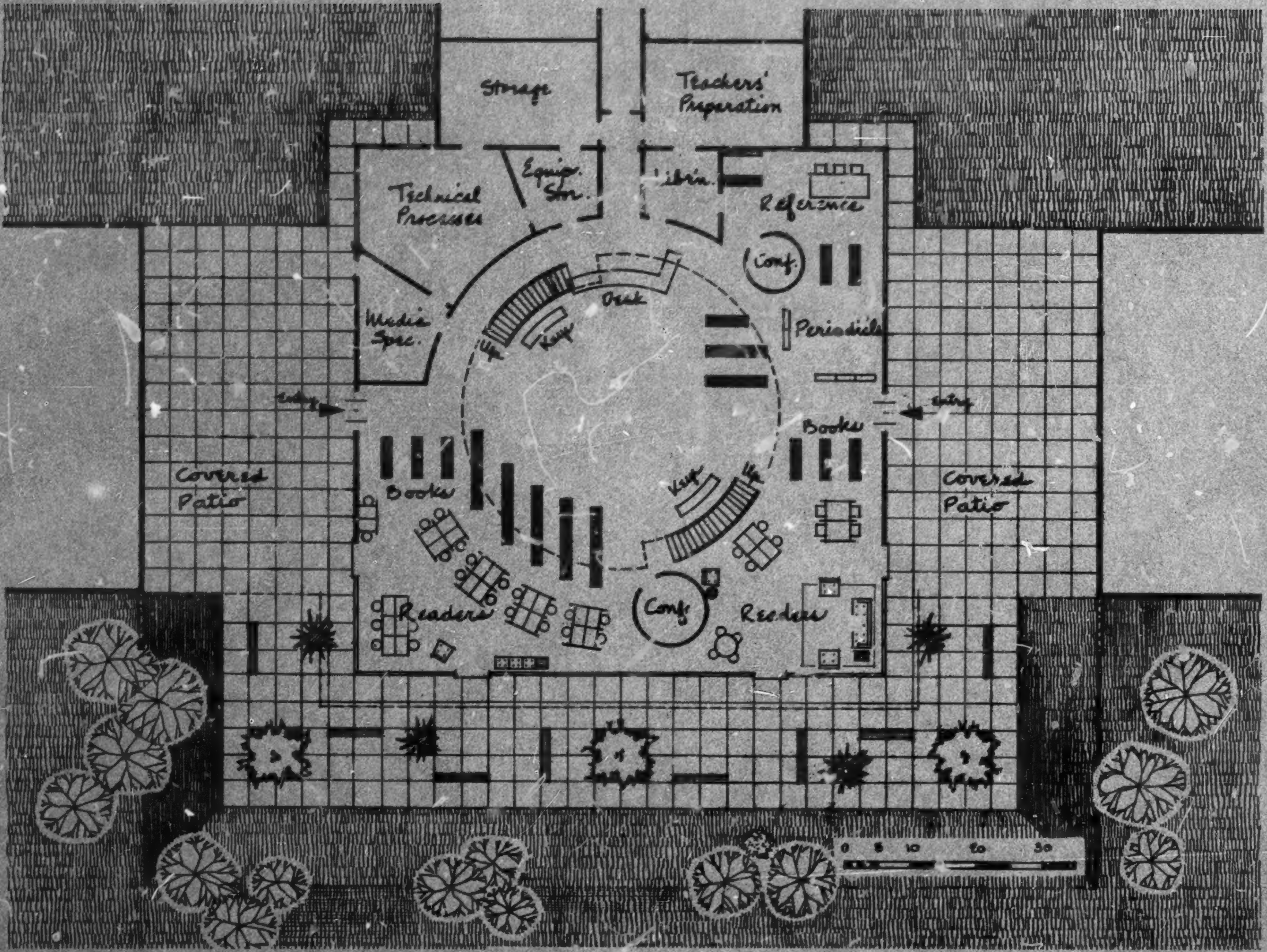
Main floor, at ground level, has entrance plaza for after-hour access, and exterior garden. Library appears, on exterior, as a graded mound leading to academic wings. *(Plans and details, next 2 pages.)*



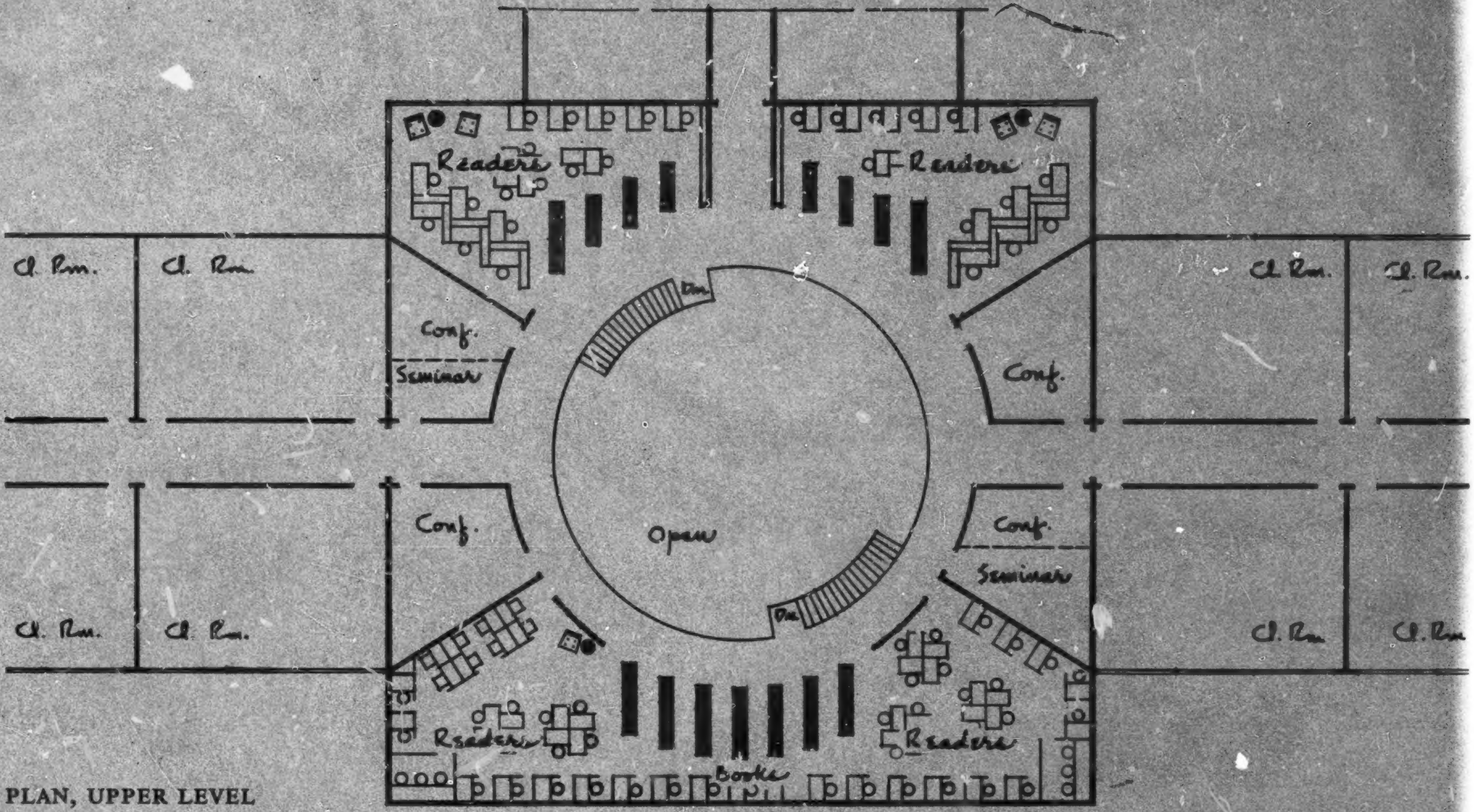


INTERIOR



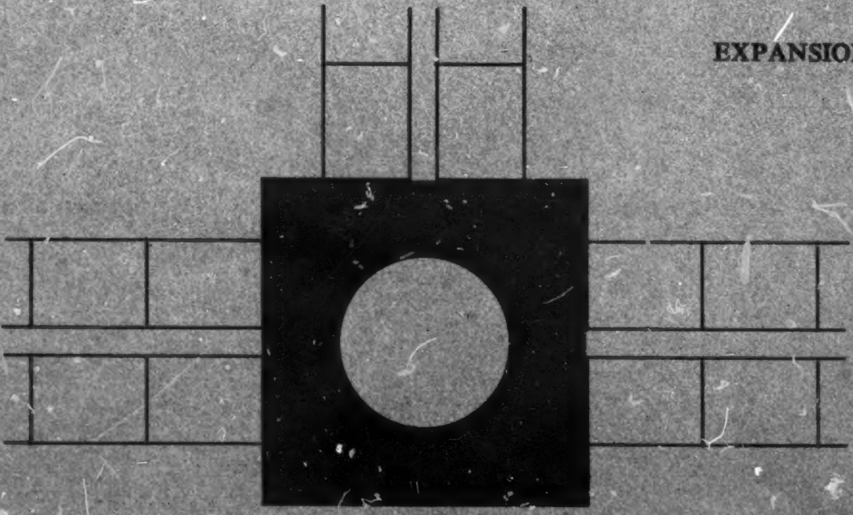

Storage
Teachers' Preparation
Technical Processes
Equip. Stor.
Librn.
Reference
Conf.
Media Spec.
Desk
Up
Periodicals
Entry
Entry
Books
Books
Covered Patio
Covered Patio
Up
Readers
Conf.
Readers
0 5 10 20 30

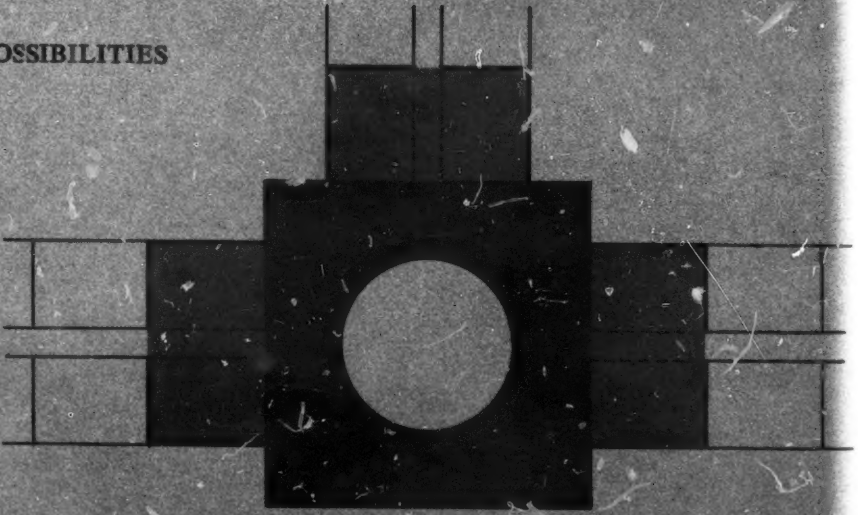
PLAN, LOWER LEVEL MAIN FLOOR


Readers
Readers
Cl. Rm.
Cl. Rm.
Cl. Rm.
Cl. Rm.
Conf.
Seminar
Conf.
Dn.
Open
Conf.
Conf.
Seminar
Dn.
Cl. Rm.
Cl. Rm.
Cl. Rm.
Cl. Rm.
Readers
Readers
Books

PLAN, UPPER LEVEL

EXPANSION POSSIBILITIES

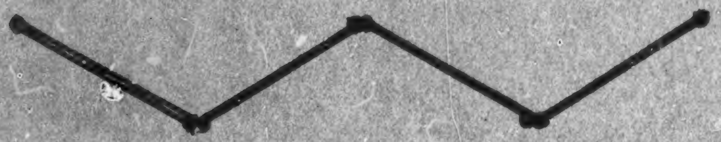




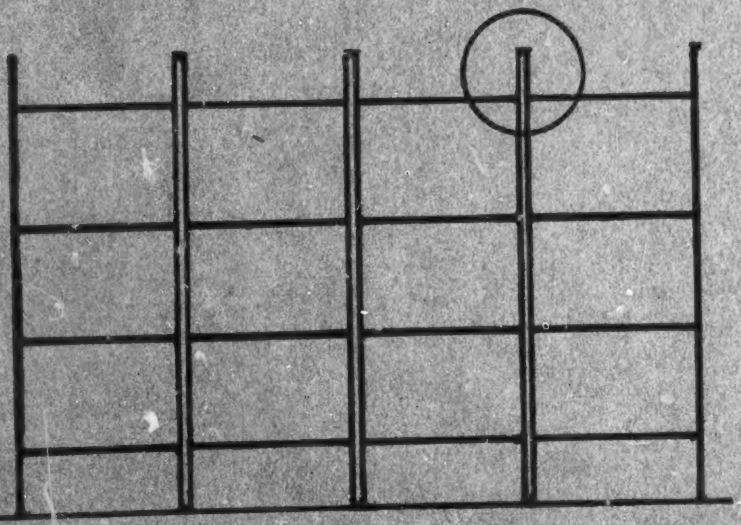
DIVIDER SCREENS

The only certainty today—and tomorrow—is change. Prepare for it. Start with large, open, interior space uninterrupted by fixed walls so the library can be friendly to what may come. If the interior is plastic, its spaces will be expandable, contractible, rearrangeable, to accommodate new function. (For that reason the loft plan, recommended throughout this report, is regarded as the structural design with the richest payload. It encloses space without freezing it).

There are a number of ways to subdivide interiors effectively, without making subdivision permanent. Operable walls and movable furniture can do it. Freestanding screens are another device. They can be used to create separate neighborhoods within the library for study carrels, listening areas, exhibit units, and living rooms. The following pages offer a series of suggestions for the fabrication and application of these dividers.

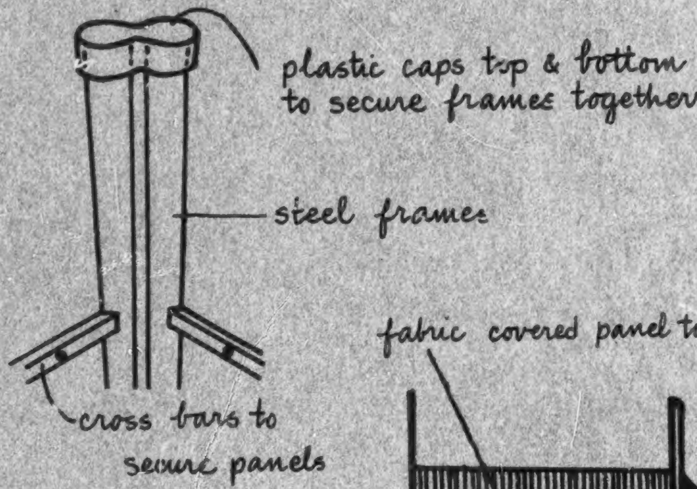


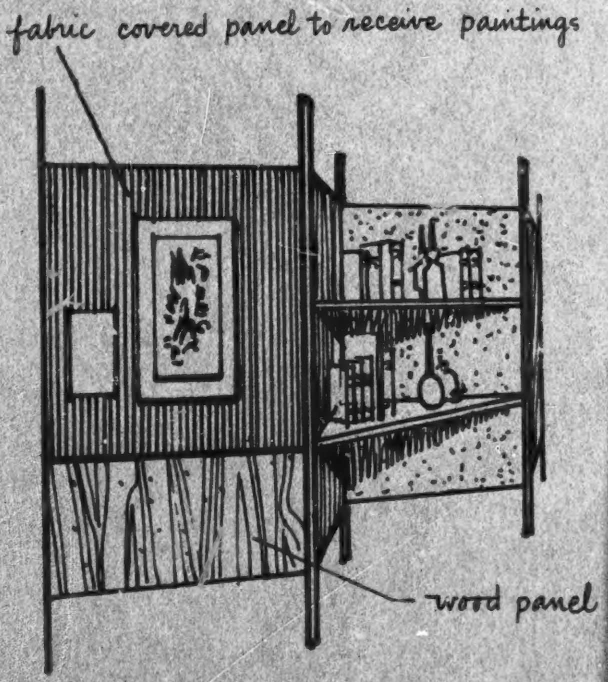
PLAN



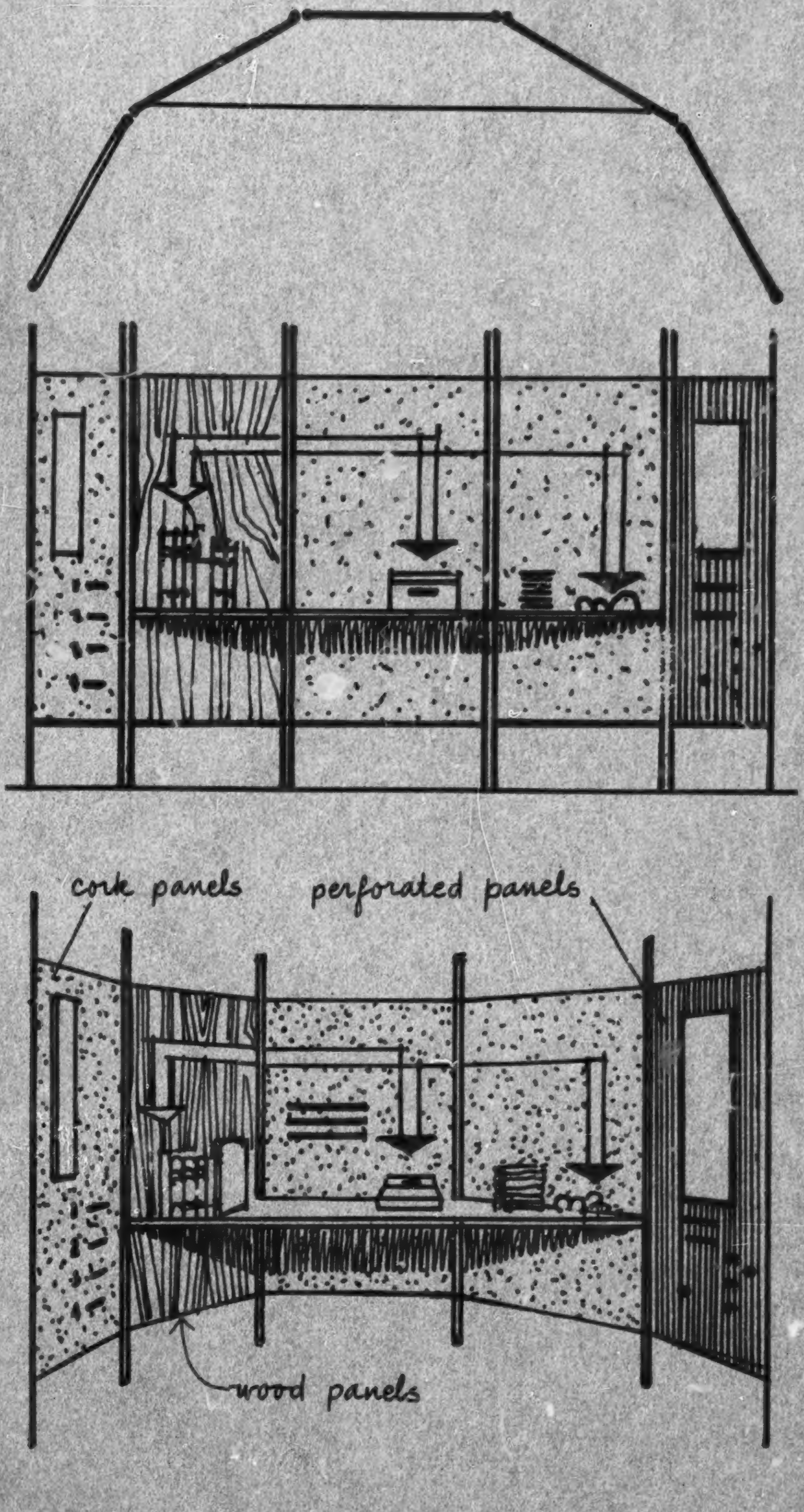
ELEVATION OF FRAMES

Single panels framed by vertical metal poles are combined to create folding divider screens. Panels are joined by locking adjacent poles with top and bottom caps.

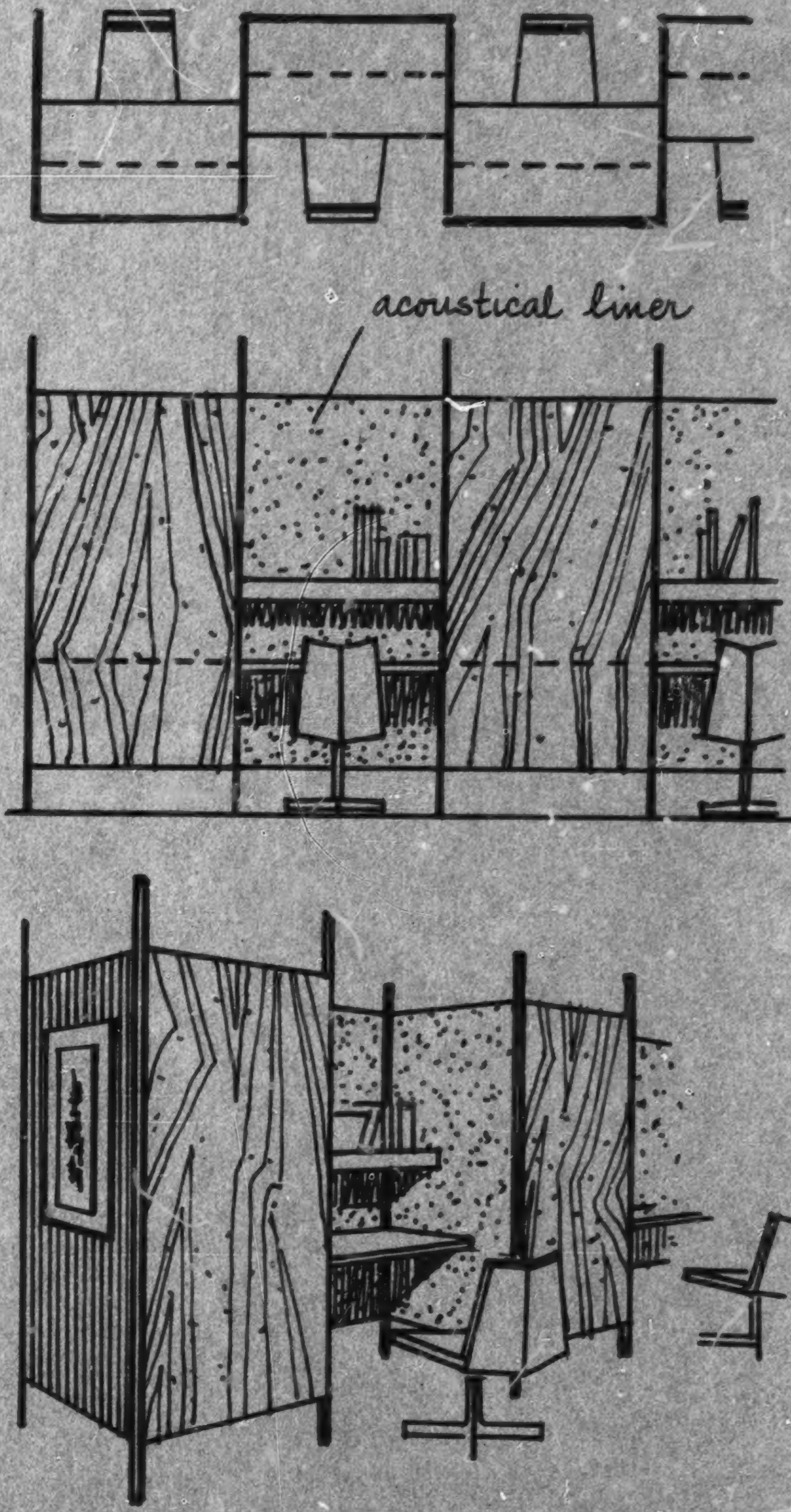

plastic caps top & bottom
to secure frames together
steel frames
cross bars to
secure panels


fabric covered panel to receive paintings
wood panel

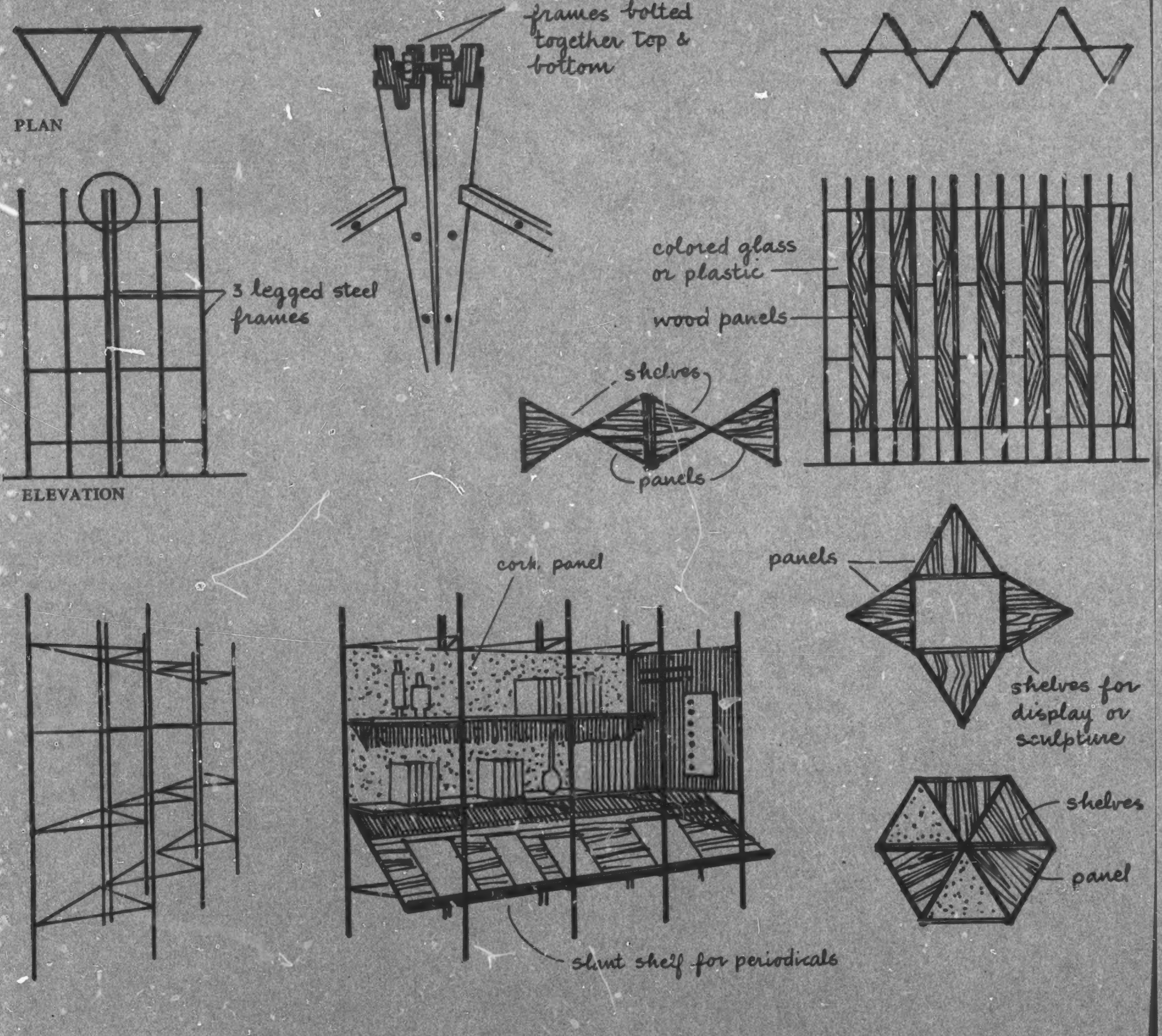
Frames set up to provide exhibit: arrangement can be expanded to provide listening area for tapes or hi-fi, using acoustical panels


cork panels
perforated panels
wood panels

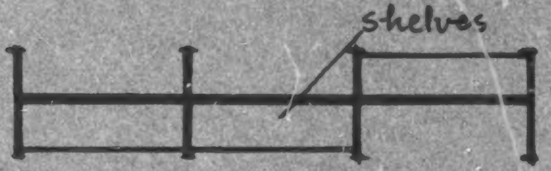
Frame used with acoustical liner panels and shelves to create study units


acoustical liner

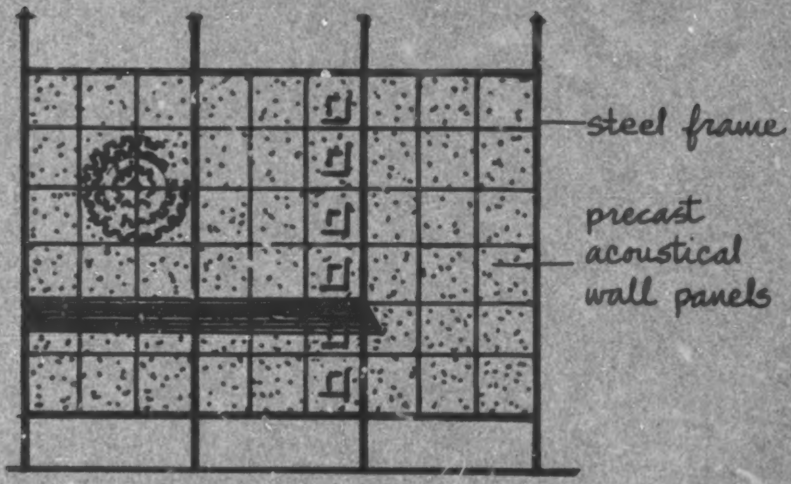
Panels and shelves hung on a triangular "space frame" structure create a three-dimensional result.


PLAN
frames bolted together top & bottom
ELEVATION
3 legged steel frames
colored glass or plastic
wood panels
shelves
panels
cork panel
panels
shelves for display or sculpture
shelves
panel
slant shelf for periodicals

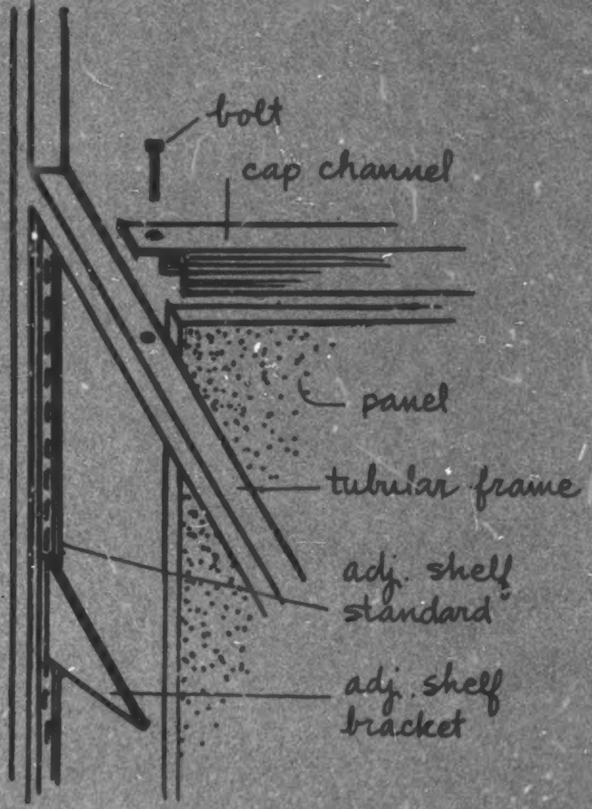
STEEL FRAMES WITH WOOD PANELS

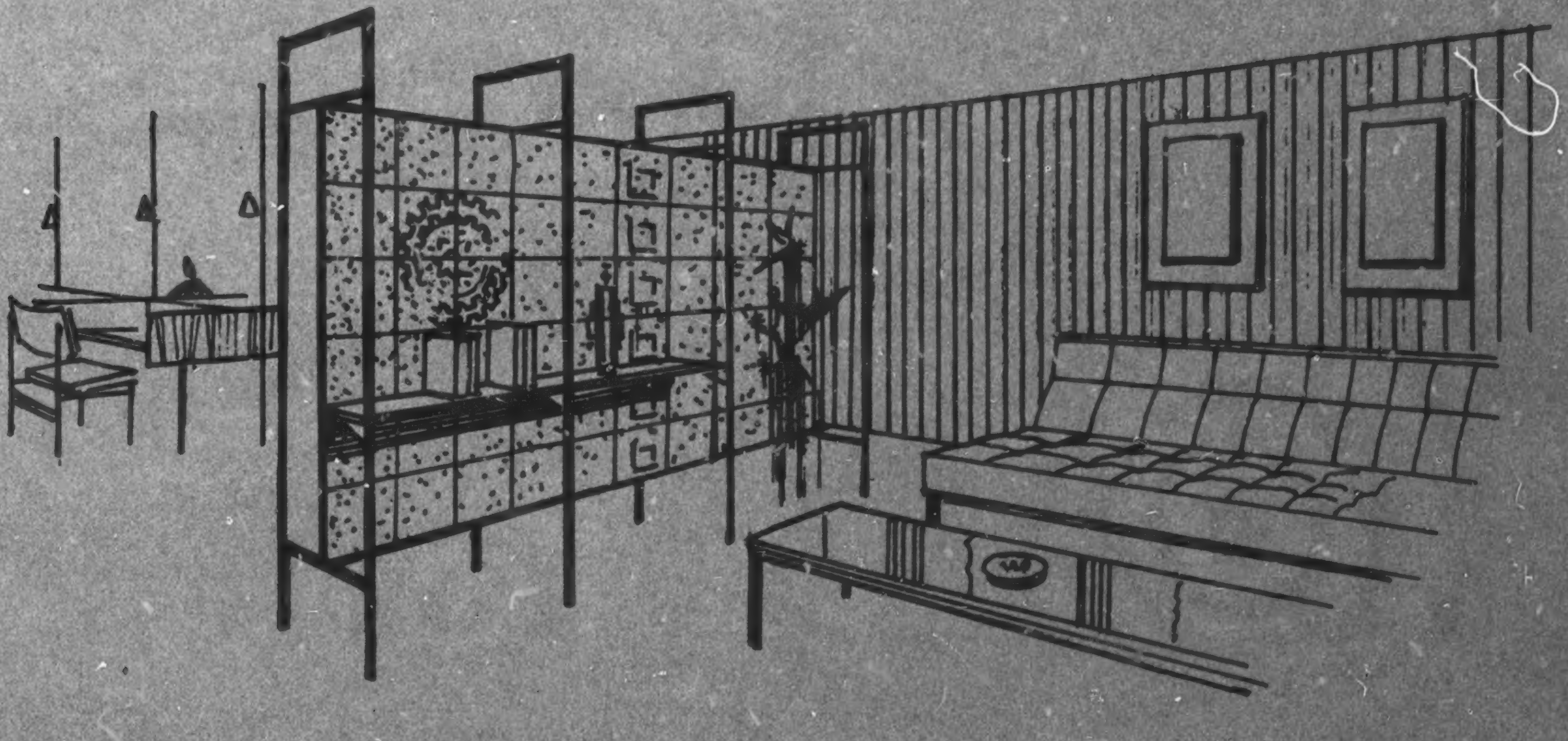


PLAN

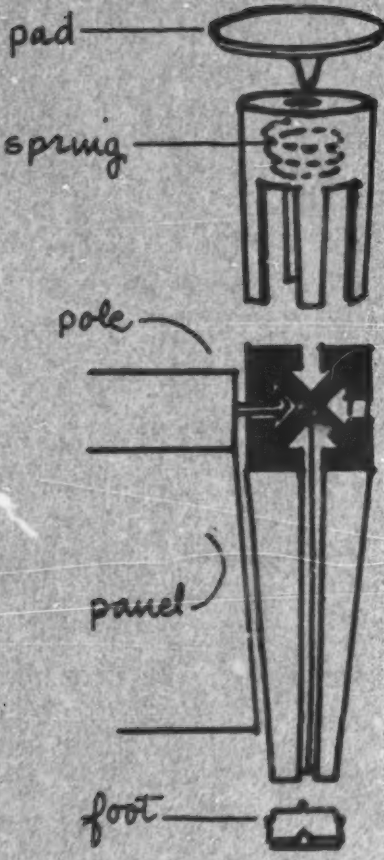

steel frame
precast acoustical wall panels

ELEVATION


bolt
cap channel
panel
tubular frame
adj. shelf standard
adj. shelf bracket

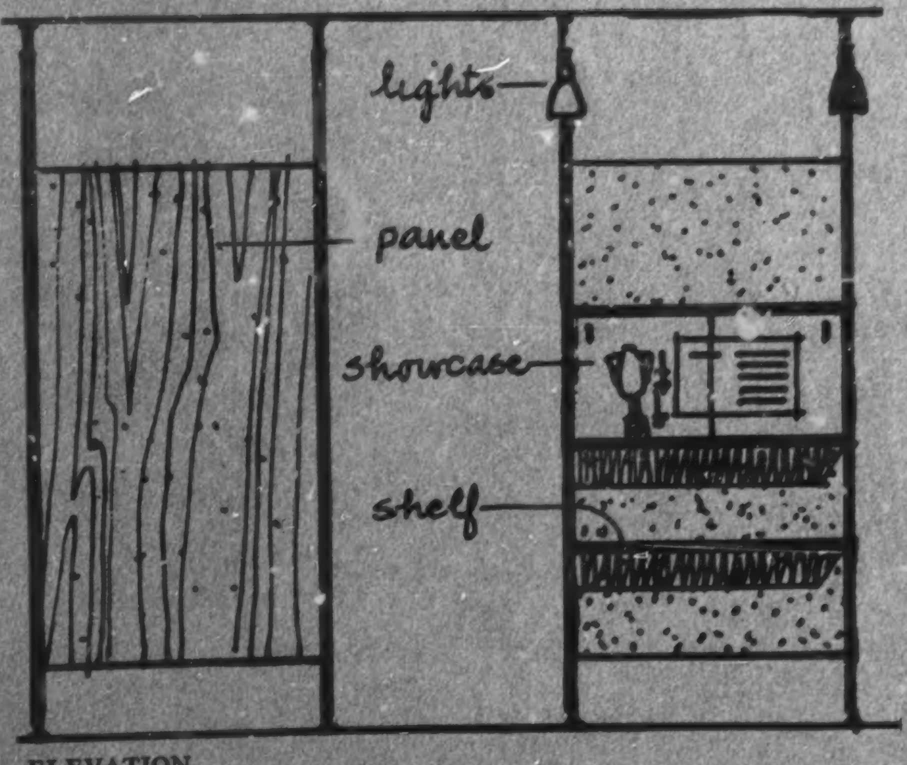


Pressure poles with attached panels create another type of movable screen divider, but rely on a stable ceiling; cannot be used with a suspended ceiling. Available from standard manufacturers in limited variety of panel types—decorative plastics, etc.

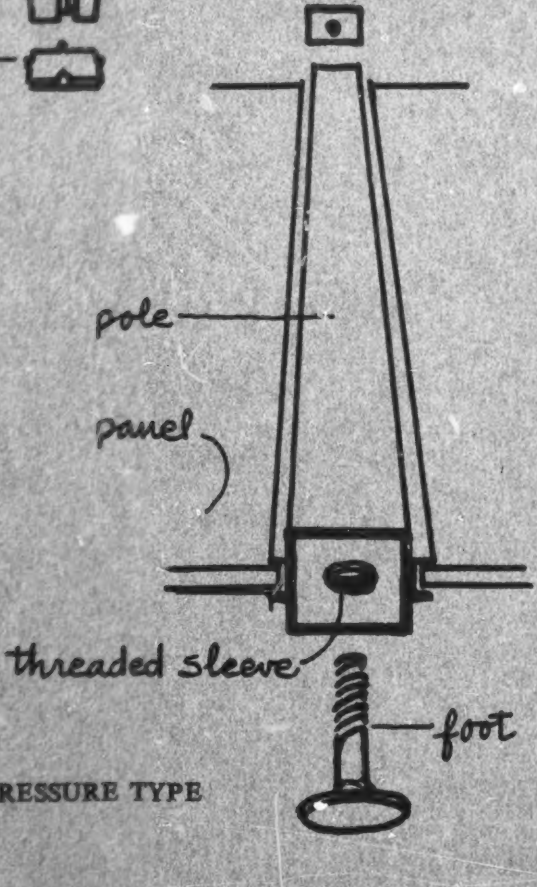

pad
spring
pole
panel
foot

TOP PRESSURE TYPE

PLAN

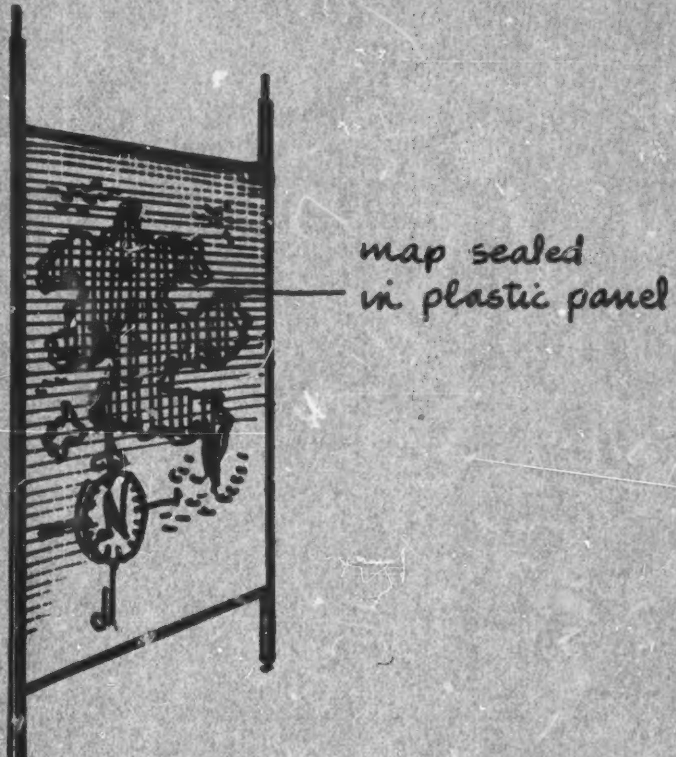

lights
panel
showcase
shelf

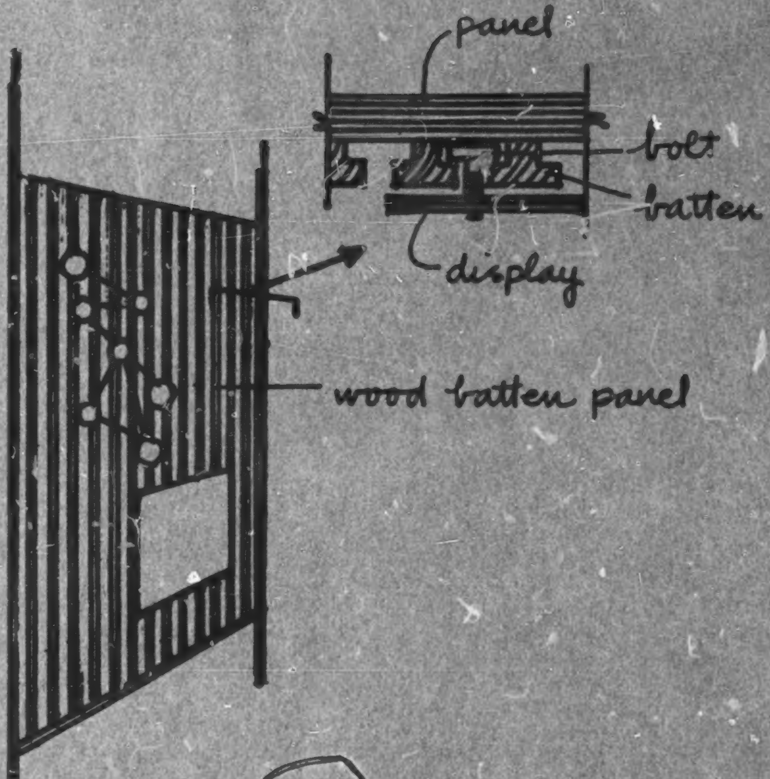
ELEVATION

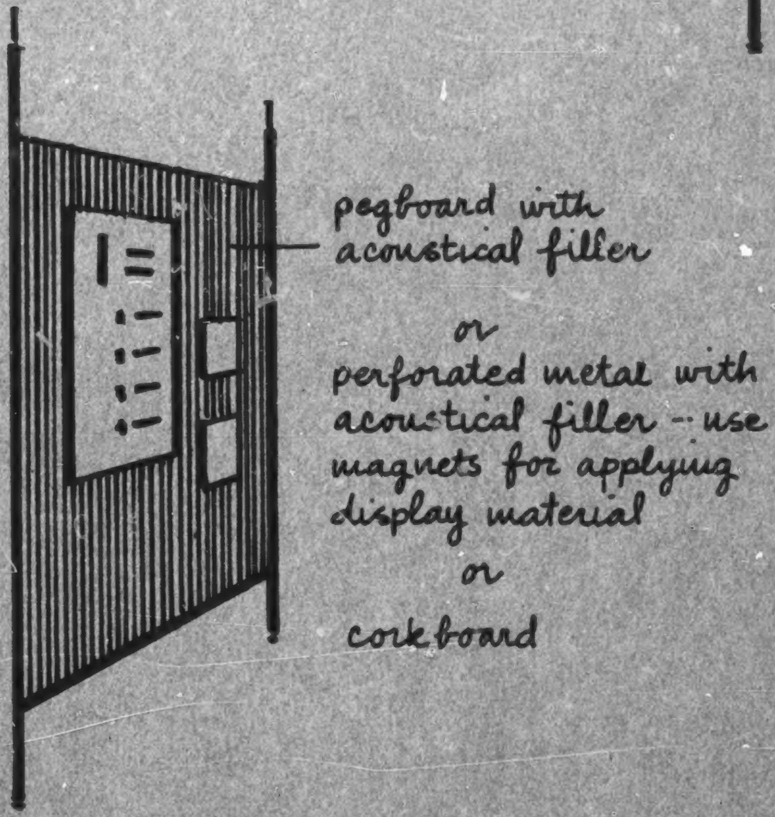

pole
panel
threaded sleeve
foot

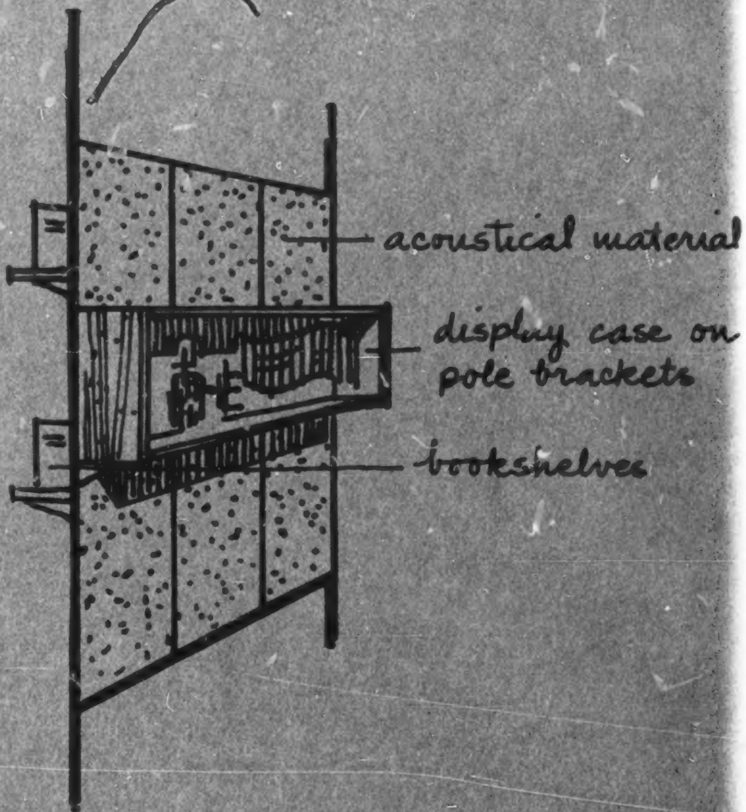
FLOOR PRESSURE TYPE

SUGGESTED PANEL TREATMENTS FOR PRESSURE POLE SCREENS

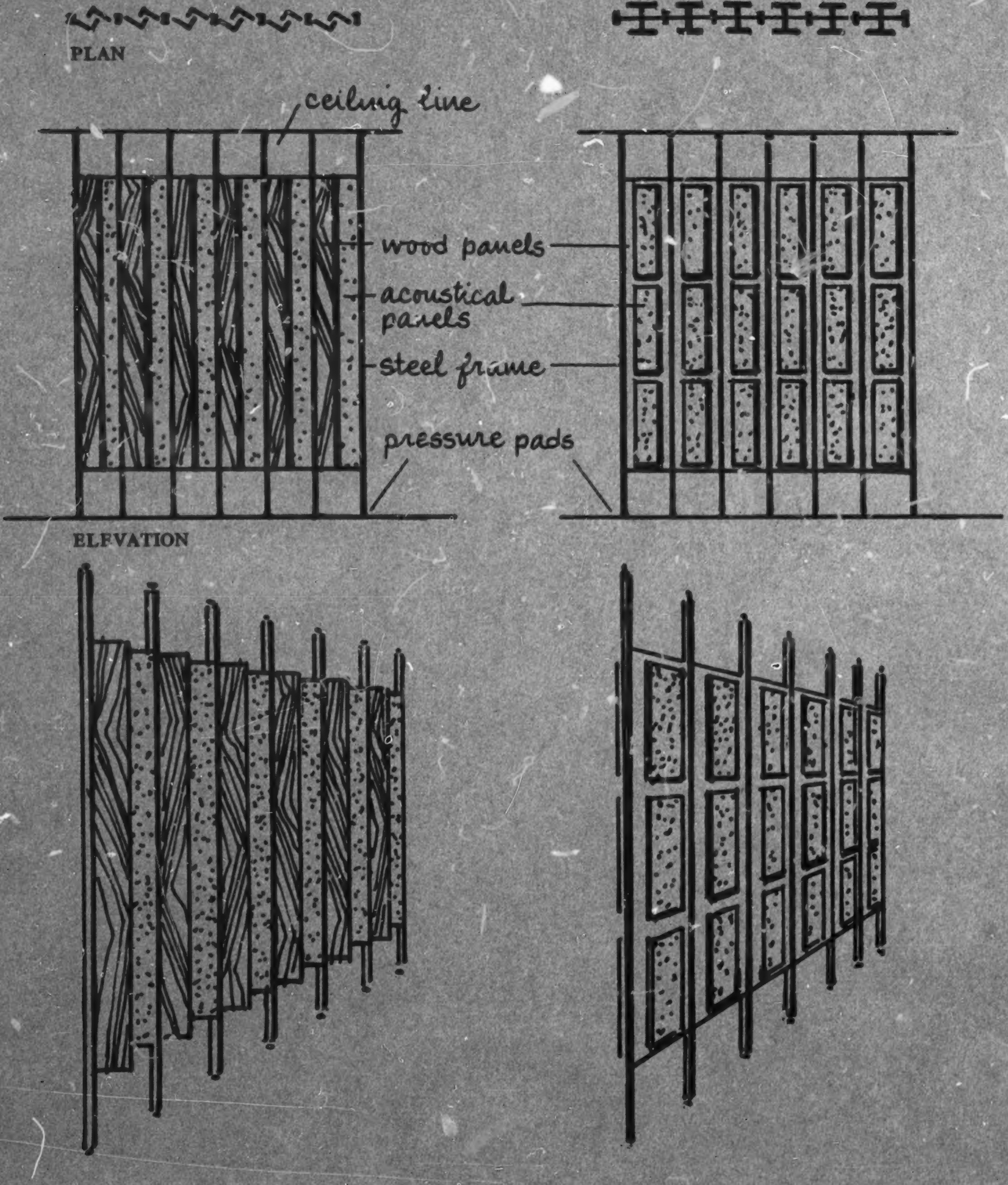

map sealed
in plastic panel


panel
bolt
batten
display
wood batten panel

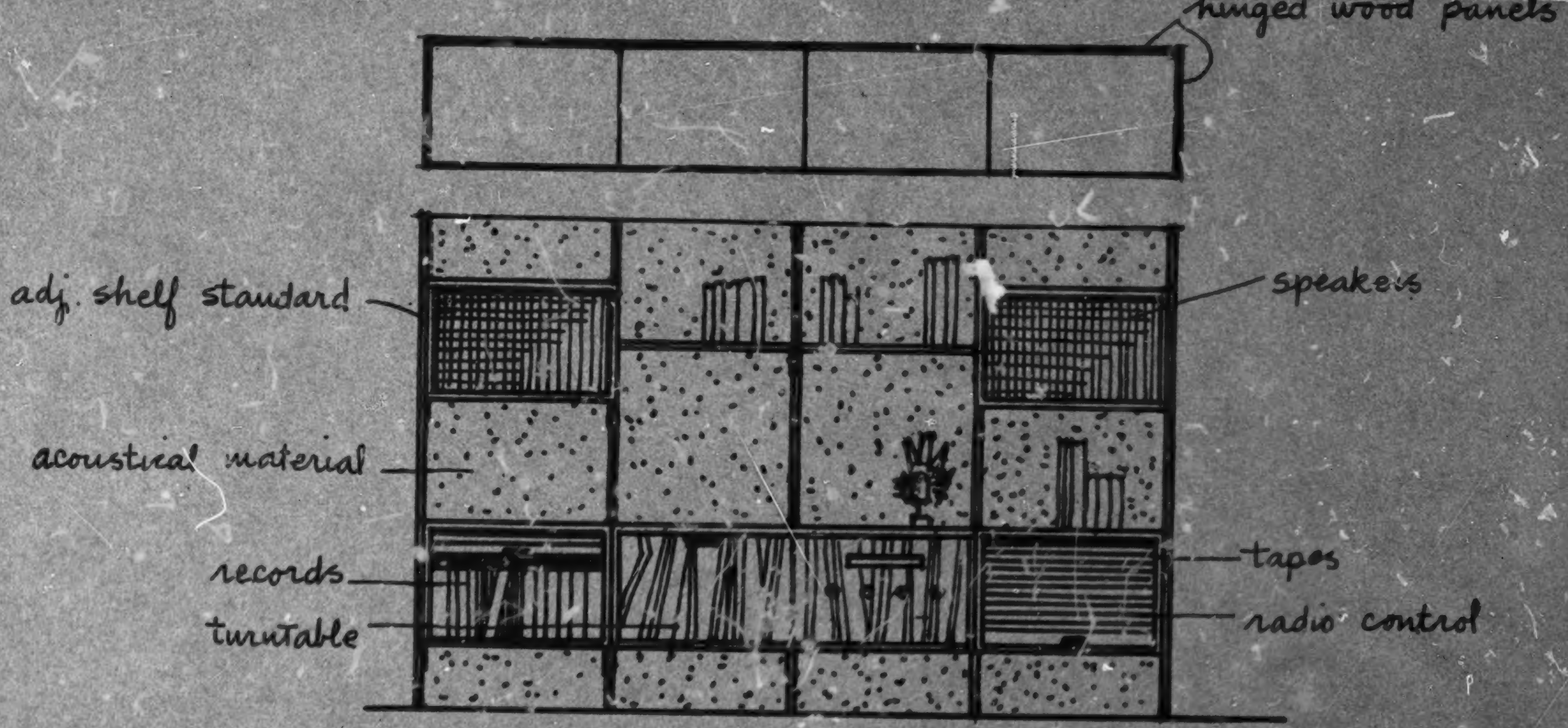

pegboard with
acoustical filler
or
perforated metal with
acoustical filler -- use
magnets for applying
display material
or
corkboard

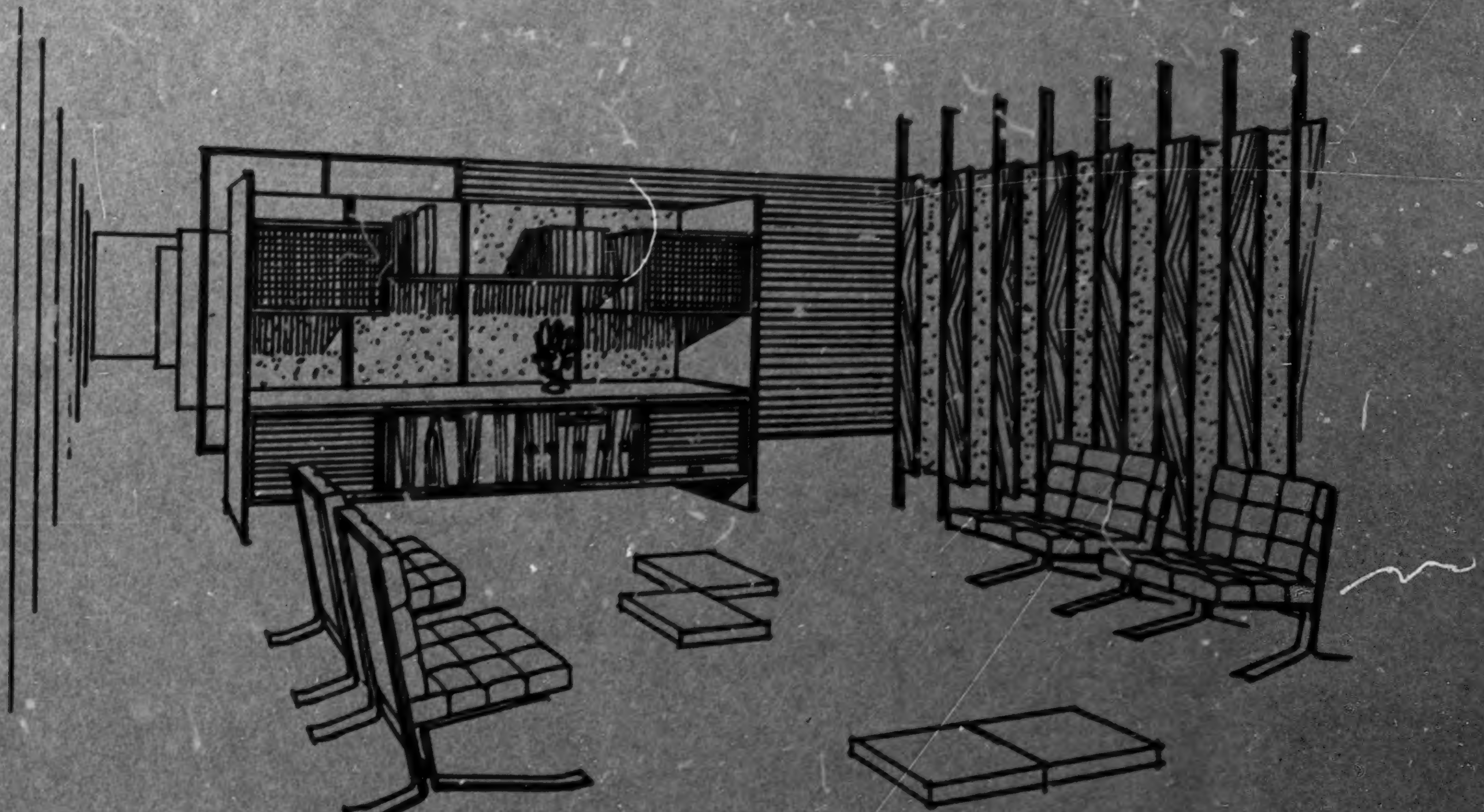

acoustical material
display case on
pole brackets
bookshelves

THREE-DIMENSIONAL PANEL MATERIALS FOR PRESSURE POLE SCREENS

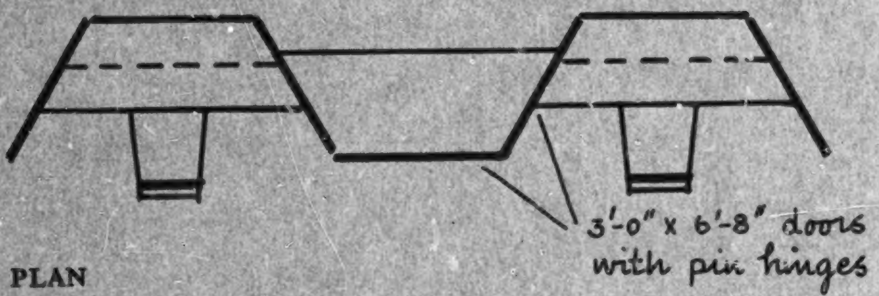

PLAN
ceiling line
wood panels
acoustical panels
steel frame
pressure pads
ELEVATION

DIVIDER ARRANGEMENT USING WOOD AND ACOUSTICAL PANELS

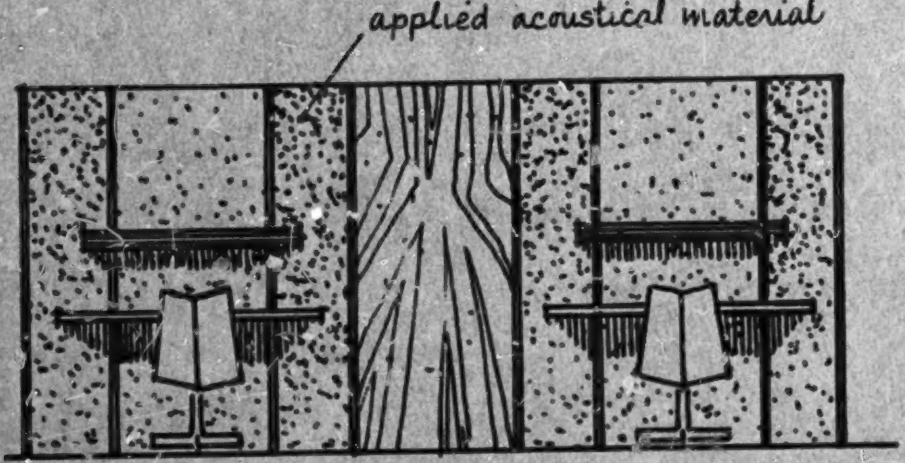

hinged wood panels
adj. shelf standard
speakers
acoustical material
records
turntable
tapes
radio control



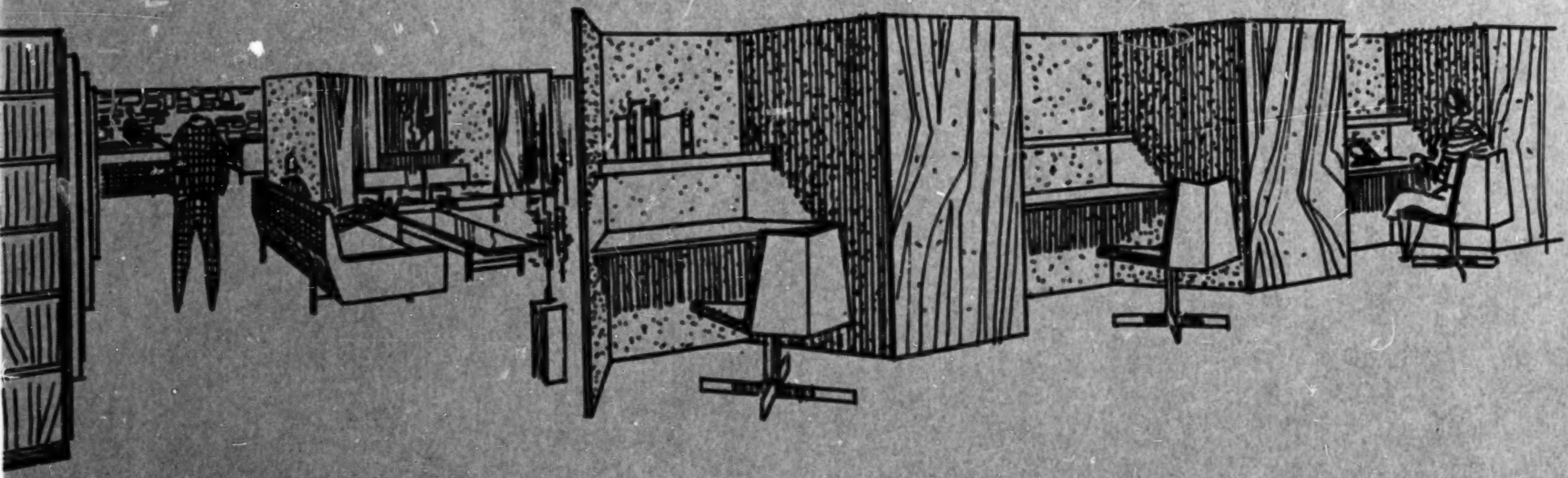
DIVIDER ARRANGEMENT FOR A STUDY AREA


3'-0" x 6'-8" doors
with pin hinges

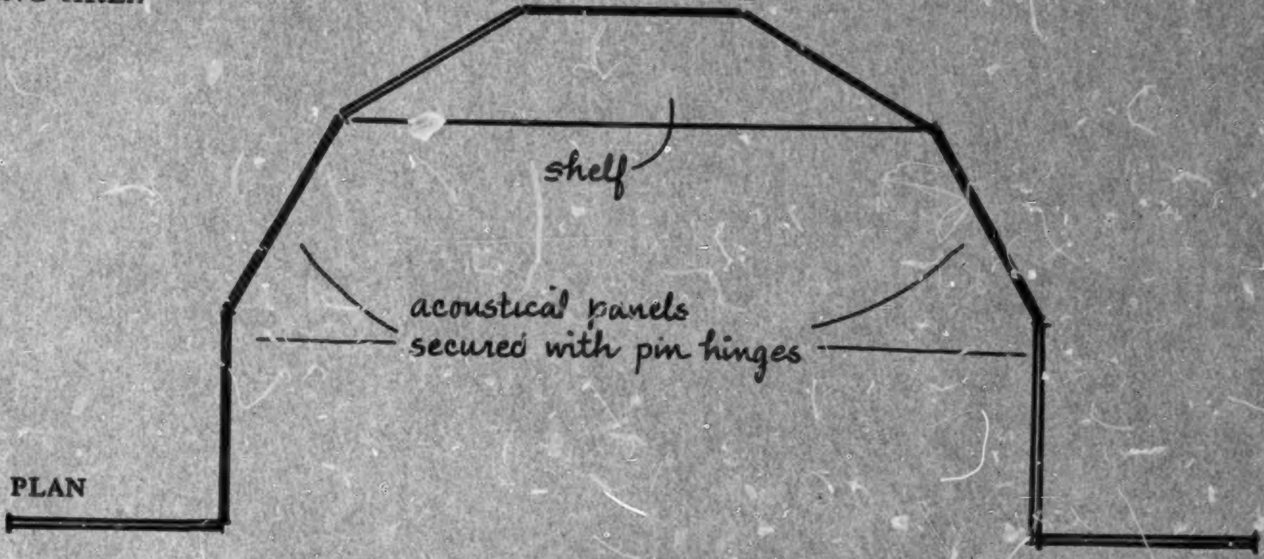
PLAN


applied acoustical material

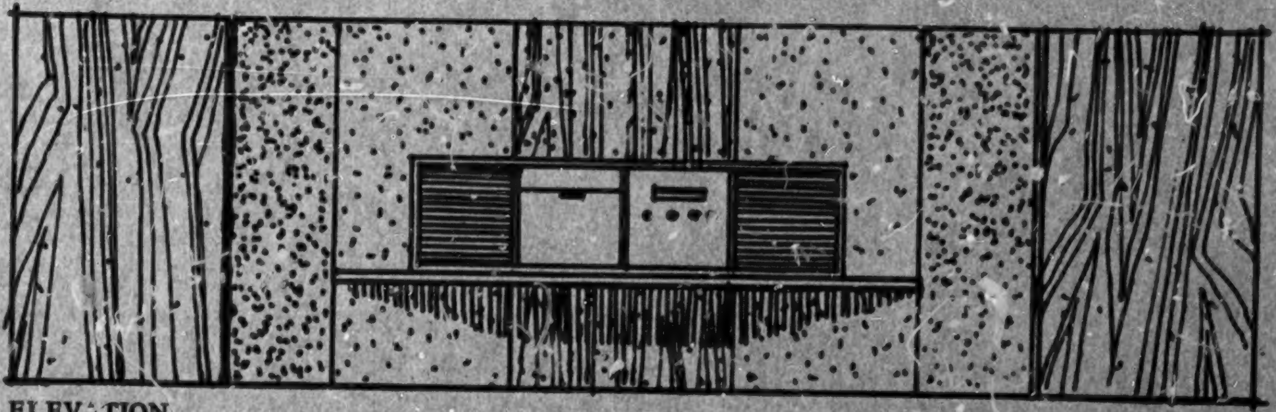
ELEVATION



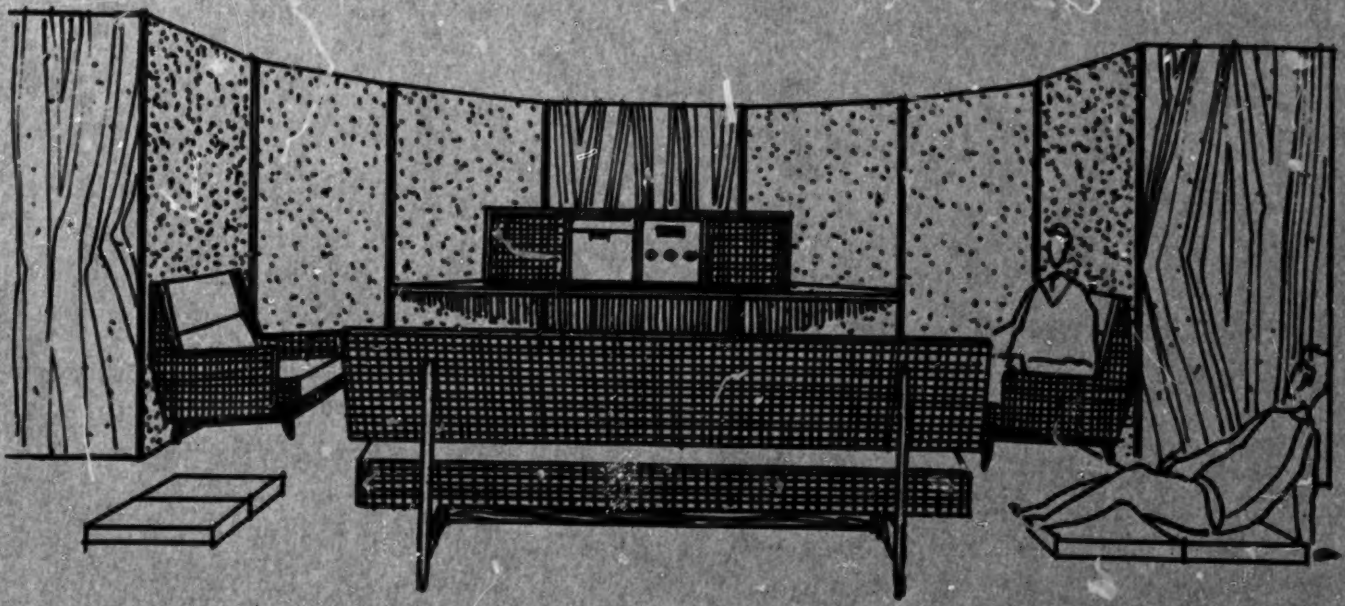
DIVIDER ARRANGEMENT WITH ACOUSTICAL PANELS FOR A LISTENING AREA


shelf
acoustical panels
secured with pin hinges

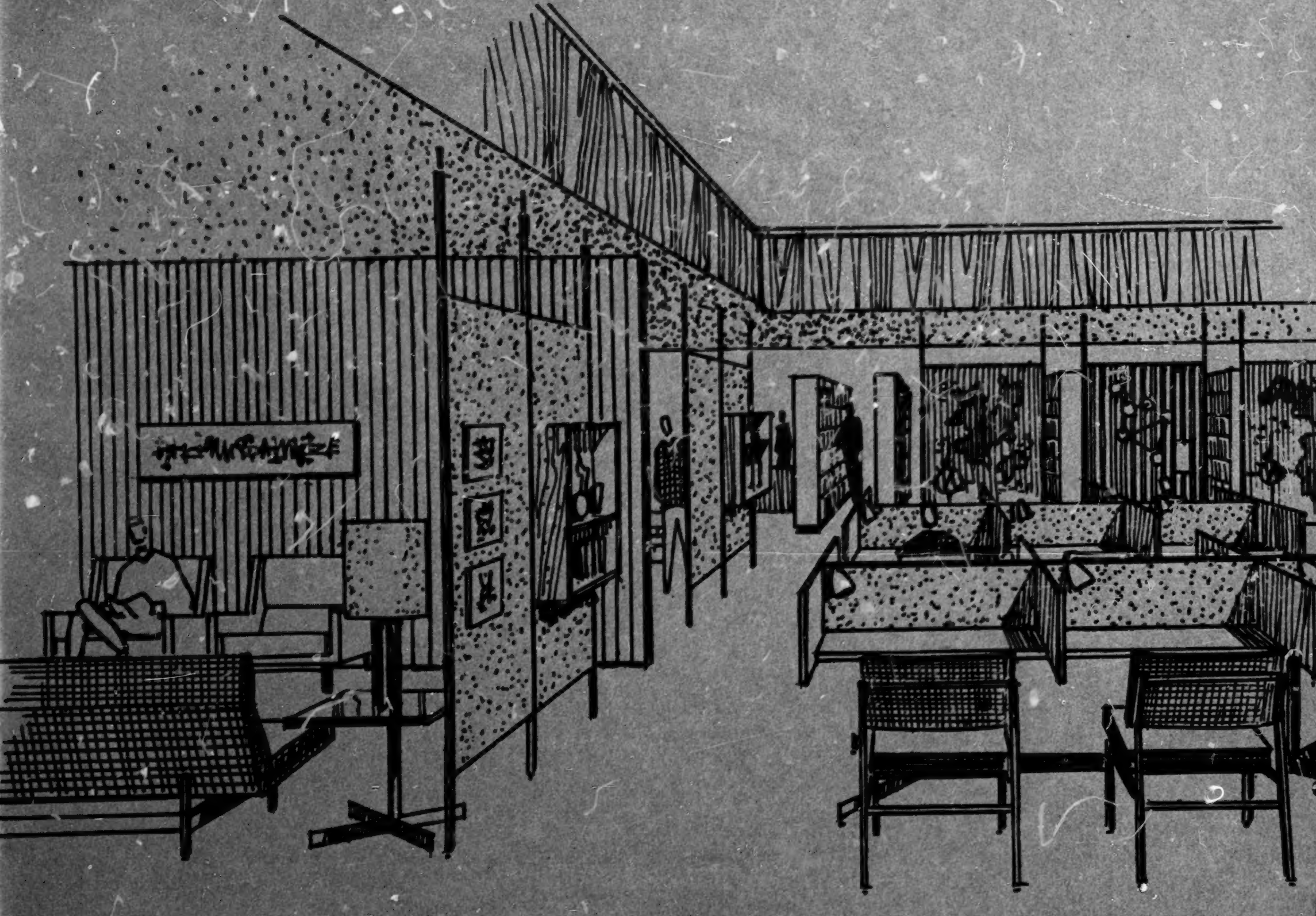
PLAN



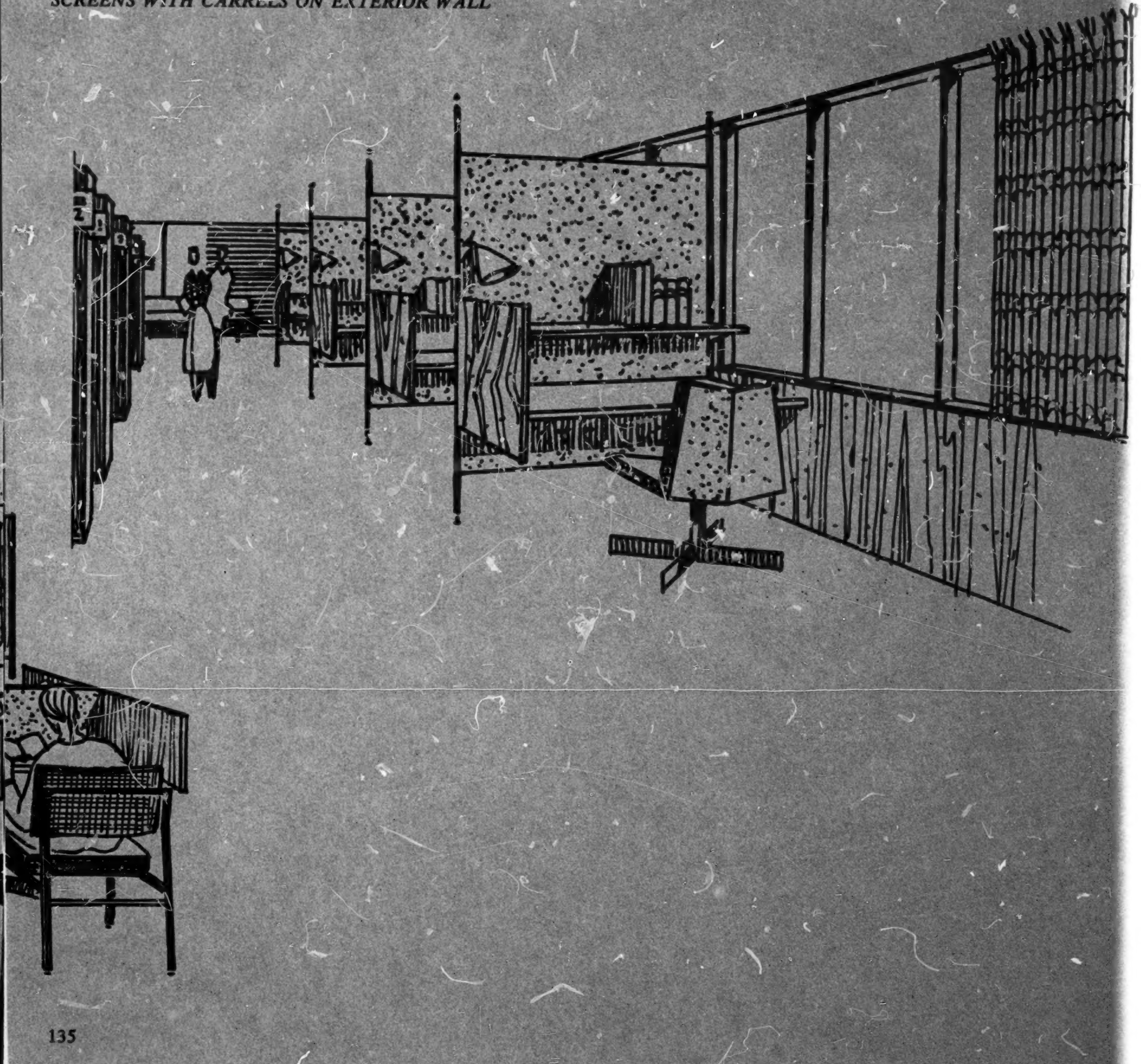
ELEVATION



INTERIOR LIBRARY VIEW SHOWING PRESSURE POLE SCREENS AND FREESTANDING CARRELS



INTERIOR LIBRARY VIEW SHOWING PRESSURE POLE SCREENS WITH CARRELS ON EXTERIOR WALL



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